

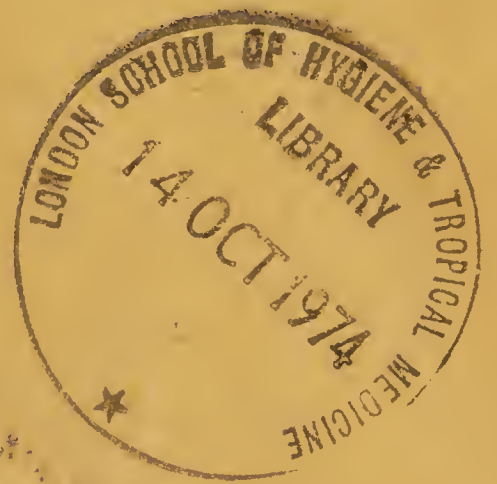
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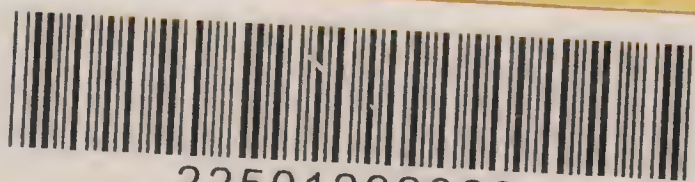
CITY COUNCIL OF SINGAPORE

AC. 226



ANNUAL REPORT OF THE
HEALTH DEPARTMENT
1960





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ANNUAL REPORT OF THE HEALTH DEPARTMENT 1960

BY

NG SEE YOOK, L.M.S., D.P.H.
City Health Officer

With the Compliments
of the
CITY HEALTH OFFICER,
MINISTRY OF HEALTH,
PALMER ROAD,
SINGAPORE, 2.

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CITY HEALTH DEPARTMENT ANNUAL REPORT FOR 1960

ON THE INSTRUCTIONS of the Administrator, City Council, at the commencement of the year 1960, steps were taken to implement the integration of the City Health Department into the Ministry of Health with the removal of its offices from the City Hall to new locations. In January 1960, the City Health Officer and the Administrative Section shifted to the top floor of the Ministry of Health building at Palmer Road. In December 1960, the Licensing Section, Public Health Inspectorate, Food and Drugs Section, and Assistant Health Officers moved to the ground floor of this same building while the Anti-Mosquito Section shifted to its new office at Kampong Java Road.

With this integration, the following changes in the existing organisation were envisaged:—

| <i>Sub-Department</i> | <i>Responsibility of</i> |
|-----------------------------------|---|
| Midwives and Child Welfare | .. Asst. Director of Medical Services (Health) |
| Middleton Hospital | .. } Asst. Director of Medical Services (Hospitals) |
| Staff Dispensaries .. | |
| Public Outdoor Dispensaries .. | |
| City Analytical Laboratory | .. Government Chief Chemist. |
| City Bacteriological Laboratory | .. Government Pathologist. |
| Registration of Births and Deaths | .. Ministry of Home Affairs |
| City Cleansing Department | .. } City Health Officer |
| Markets and Hawkers Department | |

As a result of these changes consequent upon integration and reorganisation this will be the last report in this series to be published by the City Health Officer. The various activities will, in future, be incorporated into the report of the Ministry of Health.

MID-YEAR POPULATION

The Registrar of Statistics' figure for our estimated mid-year population (city area only) is as follows:—

ESTIMATED MID-YEAR POPULATION BY RACES, 1960

| | | | | |
|------------------------|----|----|----|------------------|
| Malaysians | .. | .. | .. | 115,300 |
| Chinese | .. | .. | .. | 795,600 |
| Indians and Pakistanis | .. | .. | .. | 88,000 |
| Europeans | .. | .. | .. | 10,200 |
| Eurasians | .. | .. | .. | 6,200 |
| Others | .. | .. | .. | 8,400 |
| Total .. | | | | <u>1,023,700</u> |

Details concerning notifiable infectious diseases, vital statistics, etc. and the work carried out by the various sub-departments are set out in appendices as follows:—

- A. Notifiable Infectious Diseases.
- B. General Measures to combat spread of Infectious Diseases.
- C. Birth and Still Birth Statistics.
- D. General Death Rate, Infant Mortality Rate, Neo-Natal Rates, etc., Principal Causes of Death by whom certified.

E. Food Licences Issued; Abattoirs; Burial Grounds; and reports and returns from:—

- (1) Officer in charge of Anti-Mosquito Department.
- (2) Analyst.
- (3) Bacteriologist.
- (4) Senior Assistant Health Officer, Maternity and Child Welfare Department.
- (5) Superintendent, Middleton Hospital.
- (6) Superintendent of Abattoirs.
- (7) Chief Public Health Inspector.
- (8) Medical Officer in charge of Staff.
- (9) Rodent Overseer.

SUMMARY OF PRINCIPAL STATISTICS 1960
BIRTHS AND DEATHS, ETC.—ALL RACES COMBINED

| | | | 1959 | 1960 |
|--|----|----|--------|--------|
| Total births registered | .. | .. | 48,694 | 50,391 |
| Total deaths registered | .. | .. | 8,122 | 8,339 |
| Excess of births over deaths | .. | .. | 40,572 | 42,052 |
| Birth Rate | .. | .. | 49.00 | 49.22 |
| Crude Death Rate | .. | .. | 8.17 | 8.15 |
| Malaria Death Rate | .. | .. | 0.007 | 0.004 |
| Infantile Mortality Rate | .. | .. | 37.17 | 35.26 |
| Neo-Natal Death Rate | .. | .. | 19.53 | 19.79 |
| Still-Birth Rate per 1,000 live and still-births | .. | .. | 15.35 | 15.13 |
| Maternal Mortality Rate per 1,000 live births | | | 0.739 | 0.48 |

CERTIFICATION OF DEATHS

| | | | 1959 | 1960 |
|-----------------------|----|----|-----------------|-----------------|
| | | | <i>Per cent</i> | <i>Per cent</i> |
| Medical Practitioners | .. | .. | 65.65 | 64.83 |
| Inspecting Officers | .. | .. | 17.69 | 17.87 |
| Coroner | .. | .. | 16.36 | 16.92 |
| Police Officers | .. | .. | 0.30 | 0.38 |

NOTIFIABLE INFECTIOUS DISEASES IN 1960

| | <i>Cases Notified</i> | | <i>Deaths</i> |
|----------------------------------|---------------------------|---------------------------------|---------------|
| Tuberculosis (all forms) | 3,857 | (including 1,200 non-residents) | .. 583 |
| Typhoid | 98 | (including 81 non-residents) | .. 9 |
| Paratyphoid | 3 | (including — non-residents) | .. — |
| Diphtheria | 555 | (including 90 non-residents) | .. 38 |
| Leprosy | 119 | (including 27 non-residents) | .. 2 |
| Poliomyelitis | 119 | (including 78 non-residents) | .. 6 |
| Erysipelas | 3 | (including — non-residents) | .. — |
| Chickenpox | 1,800 | (including 450 non-residents) | .. 4 |
| Small-pox, Cholera and Plague | — | — | — |

DEATHS CERTIFIED AS DUE TO SOME OF THE
NON-NOTIFIABLE INFECTIOUS AND PARASITIC DISEASES IN 1960

| | | | 1959 | 1960 |
|---|----|----|------|------|
| Dysentery—Bacillary | .. | .. | 18 | 23 |
| Amoebic | .. | .. | | |
| Unspecified | .. | .. | | |
| Malaria | .. | .. | 7 | 3 |
| Influenza | .. | .. | 19 | 27 |
| Whooping Cough and Complications | .. | .. | 2 | 7 |
| Measles and Complications | .. | .. | 15 | 11 |
| Leptospirosis Icterohæmorrhagica (Weil's Disease) | | | — | — |
| Tetanus | .. | .. | 41 | 28 |

VACCINATION

| | | | 1959 | 1960 |
|-----------------------------------|----|----|--------|--------|
| Age Group (0—1) | .. | .. | 38,548 | 36,107 |
| Age Group (1—5) | .. | .. | 2,693 | 872 |
| Age Group (5 and over) | | .. | 880 | 44 |
| Total vaccinated and revaccinated | .. | | 42,121 | 37,023 |

MATERNAL AND CHILD WELFARE DEPARTMENT

HOME VISITS BY SISTERS AND HEALTH VISITORS

| | | | 1959 | 1960 |
|---|----|----|--------|--------|
| Mothers visited by District Sisters within ten days after confinement | .. | .. | 13,876 | 12,112 |
| Subsequent visits by District Sisters to Mothers | | | 5,843 | 6,905 |
| First visits by Health Visitors to new babies | .. | | 28,437 | 29,080 |
| Subsequent visits by Health Visitors to new babies | .. | .. | 28,907 | 27,133 |
| Visits to expectant mothers | .. | .. | 5,326 | 4,439 |
| Visits made in connection with Anti-Diphtheria Immunisation | .. | .. | 3,980 | 7,202 |
| Total visits to homes by Sisters and Health Visitors | .. | .. | 86,369 | 86,871 |

ATTENDANCES AT CLINICS

| | | | 1959 | 1960 |
|---|----|----|-------------------|-------------------|
| <i>Infants (0—1)</i> | | | | |
| 1st attendances | .. | .. | 38,414 | 40,606 |
| Subsequent attendances | .. | .. | 193,579 | 209,944 |
| Total attendances | .. | | 231,993 | 250,550 |
| Of these, attendances of sick babies i.e. in percentage | .. | .. | 154,628 66.65% | 159,788 63.77% |
| <i>Pre-school Children</i> | | | | |
| 1st attendances | .. | .. | 22,463 | 28,743 |
| Subsequent attendances | .. | .. | 54,964 | 69,196 |
| Total attendances | .. | | 77,427 | 97,939 |
| Of these, attendances of sick toddlers i.e. in percentage | .. | .. | 57,882 74.76% | 61,684 62.98% |
| <i>Expectant Mothers</i> | | | | |
| 1st attendances | .. | .. | 7,116 | 6,887 |
| Subsequent attendances | .. | .. | 18,437 | 19,154 |
| Total attendances | .. | | 25,553 | 26,041 |

DIPHTHERIA IMMUNISATION—COMPLETE COURSES

| | | | 1959 | 1960 |
|---------------------------|----|----|-------|-------|
| Infants (0—1) | .. | .. | 7,310 | 1,481 |
| Pre-school Children (1—5) | .. | .. | 6,685 | 4,773 |
| Older Children (5—10) | .. | .. | 242 | 538 |

COUNCIL FREE MIDWIFERY SERVICE

| | 1959 | 1960 |
|---|--------|--------|
| Confinements attended by Council Midwives | 1,295 | 1,137 |
| Visits paid to cases discharged from Govern- ment Maternity Hospital three days or so after confinement | 15,207 | 15,172 |
| Visits subsequently paid to known cases of confinement not attended by Doctors or Midwives | 82 | 84 |

CONDUCTION OF CONFINEMENTS

| | 1959 | 1960 |
|---|--------------|--------------|
| Government Maternity Hospital | 34,028 | 36,310 |
| Private Maternity Homes and by Private Doctors | 2,986 | 3,264 |
| Private Midwives | 11,448 | 8,307 |
| Council Midwives | 1,295 | 1,137 |
| No skilled attention at confinement .. | 389 | 270 |
| | <hr/> 50,146 | <hr/> 49,288 |

HEALTH OF CITY COUNCIL STAFF

AVERAGE STRENGTH OF CITY COUNCIL STAFF DURING 1960

| | | |
|---|---------|-------|
| Approximate number of Senior, Junior and Subordinate Staff stationed in Singapore including temporary staff and also including females. Figures supplied by Assistant Secretary (Staff) | | 4,000 |
|---|---------|-------|

| | |
|---|-------|
| Approximate number of Daily-Rated Employees stationed in Singapore including females and young persons. Figures supplied by Labour and Welfare Officer .. | 9,100 |
|---|-------|

| | Staff (a) | Daily Rated Employees (b) | Total (a) and (b) |
|--|---------------|---------------------------------|----------------------|
| New cases attended at dispensaries (including accidents while on duty) | 16,211 | 66,852 | 83,063 |
| Total attendances including first visits. .. | 25,158 | 114,672 | 139,830 |
| Examination for physical fitness | 729 | 743 | 1,472 |
| Visits paid to homes by M.O. i/c. Staff .. | 81 | 77 | 158 |
| Cases treated by Private Practitioners .. | 2,549 | 17,907 | 20,456 |
| Days sick leave granted (excluding leave under Workmen's Compensation Ordinance) including leave on account of Tuberculosis by:— | 44,728 | 200,251 | 244,979 |
| (a) M.O. i/c. Staff | 14,598 | 82,266 | 96,864 |
| (b) Private Practitioners | 5,153 | 29,507 | 34,660 |
| (c) Hospitals | 7,739 | 36,990 | 44,729 |
| Total .. | 27,490 | 148,763 | 176,253 |
| Leave granted under Workmen's Compensation Ordinance by M.O. i/c. Staff and General Hospital. | 435 | 17,910 | 18,345 |
| Days leave granted for Tuberculosis. .. | 2,152 | 14,375 | 16,527 |
| Average number of days sick leave (excluding leave under Workmen's Compensation Ordinance) including tuberculosis leave granted per person employed in Senior, Junior, Subordinate and Daily Rated Employees and Temporary Staff in 1960 | 6.42 % | 15.06 % | 12.67 % |

BIRTH RATE

The birth rate of the past five years are as follows:—

| 1956 | 1957 | 1958 | 1959 | 1960 |
|-------|-------|-------|-------|-------|
| 49.11 | 50.40 | 49.40 | 49.00 | 49.22 |

It is noted that the birth rate of 49.22 has shown no significant change when compared with 49.00 in 1959.

DEATH AND INFANTILE MORTALITY RATES

The general reduction in the Crude Death Rate, Infantile Mortality Rate and Maternal Mortality Rate shows a good response from the population in utilising the medical services provided. The Malaria Death Rate of 0.004 shows a decrease as compared with 0.007 for 1959.

TUBERCULOSIS DEATH RATE PER 1,000 POPULATION

| 1947 | 1951 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|-------|-------|------|------|------|------|------|------|------|------|
| 2.350 | 1.717 | 1.08 | 1.00 | 1.02 | 0.74 | 0.70 | 0.56 | 0.56 | 0.57 |

The death rate for 1960 of 0.57 shows a slight increase over that of 0.56 for 1959.

TYPHOID FEVER

There were seventeen cases notified in persons resident within the City Area, eighty cases in persons not residing within the City Area and one imported case. There were also three cases of para-typhoid in persons resident within the City Area. Nine persons died of this disease.

A sudden outbreak of typhoid occurred in September, 1960, on Pulau Bukom Besar where fifty-three people contracted the disease. Although hawkers and food handlers from the island were screened for the carrier state, the results were negative. The source of the outbreak was subsequently found to be a carrier from a neighbouring island.

DIPHTHERIA

During the year 465 cases were notified in persons ordinarily resident in the City Area and 90 cases in persons resident in the Rural Area. There were 38 deaths from this disease. In view of the high incidence of this disease, serious consideration was given for the introduction of legislation for compulsory immunisation which it is anticipated will be enforced next year.

POLIOMYELITIS

There were forty-one cases notified in persons resident in the City Area and seventy-eight cases in persons resident in the Rural Area. Six deaths occurred from this disease. Most of these cases occurred in children aged 3 years and below. A further description of these cases can be found in the report of the Medical Superintendent of the Middleton Hospital.

MIDDLETON HOSPITAL

4,924 patients were treated in this hospital with 76 deaths. The number of admissions was the highest ever recorded in this hospital and showed a marked increase over that of 3,451 in 1959.

MALARIA

The incidence of malaria in Singapore is still negligible. In the City Area 14 cases were reported and on investigation they were all found to be imported cases from neighbouring countries. The malaria death rate was 0.004 per 1,000 population within City Limits.

CITY ANALYST DEPARTMENT

This department continued its valuable work in the examination of various samples which totalled 30,831 for the year. The purity and quality of the Singapore water supply was satisfactorily maintained throughout the year.

BACTERIOLOGICAL DEPARTMENT

Public Health specimens examined totalled 55,842, while the total of water specimens examined was 74,196. The bacteriological results of water analyses from all the taps continued to be satisfactory. A total of 4,022 rats were dissected but none were found to be infected with plague.

FOOD AND DRUGS SECTION

The total number of samples examined for breaches of the Food and Drugs Regulations, 1957, was 1,886. There were 164 prosecutions with 161 convictions. In addition 144,235 lb. of food were unfit for human consumption and 2,555 packages of drugs were destroyed.

There were 54 incidents of food poisoning affecting 568 persons. In 8 of these incidents, 3 food establishments were involved where it was found that the contamination was due to cuts and wounds on handlers, careless handling of food and feeding utensils, and improper storage of food.

Following a report by the Chief Chemist on a sample of Chinese Medicine called "PING GOH CHIN", an investigation revealed that a nine year old child was affected with temporary blindness after having been given doses of this medicine. An analysis showed that this drug contained 97% aspirin although the formula on the label declared Phenacetinum 37%, Caffeinae Citras 10% and Acidum Acetyl Salicylicum 53%. A court conviction was obtained against the manufacturer and all the entire stocks of this drug were forfeited and destroyed.

ABATTOIRS

The total number of animals slaughtered in the City Abattoirs was 529,094 and these comprised 435,124 swine, 6,219 oxen, 3,474 buffaloes, 16 horses, 81,984 sheep and 2,277 goats. The carcasses of 86 swine, 12 oxen, 6 buffaloes and 11 sheep were condemned. The net receipts for the year amounted to a total of \$1,028,743.15.

SMALL-POX VACCINATION

There was an appreciable decrease in the number of vaccinations for the year which totalled 37,023 as compared with 42,121 for 1959. This was due to the absence of any incidence of small-pox, whereas in 1959 a small outbreak of this disease entailed an island-wide vaccination campaign.

On the basis of vaccinations carried out on infants under 6 months old, there was a slight drop in the number of primary vaccinations with a total of 26,834 as compared with 27,444 for 1959.

MATERNAL AND CHILD WELFARE DEPARTMENT

The general public is very conscious of the hospital facilities and pregnant women prefer to have their babies in hospital. The number of confinement cases referred from Kandang Kerbau Maternity Hospital for post-natal domiciliary after-care by City Council midwives maintained a steady level with 15,172 cases as compared with 15,207 for 1959. Due to the poor response to advertisements for recruitment to the many vacancies, the department, with its shortage of staff, had no alternative but to curtail its activities on Home Visiting and concentrate more on the needs of the public in the various clinics.

B.C.G. immunisation is progressing slowly as parents are becoming more aware of the dangers of T.B. However, during the last few months of the year a good number of adenitis and abscesses were seen after B.C.G. and the severe cases were referred to the Pædiatric Unit for treatment.

Anti-Diphtheria Immunisation was confined to the use of Triple Antigen for all Primary Immunisation of infants instead of using Plain A.P.T., or A.P.T. plus Whooping Cough. With the follow-up of children in the Clinics through their Pre-School years there was an increased number of Booster doses given.

An intensive Family Planning Campaign was launched in November with courses of lectures in Chinese and English to "Lay Workers". Wide publicity was given by the Press and Radio. An Exhibition was held in the Victoria Memorial Hall from November 26th to December 4th with an average attendance of 10,000 persons daily and 12,000 at weekends. It is hoped that this favourable response by the public together with the services provided in the City Clinics will result in more sensible planning of families thereby progressing towards the achievement of the Government policy in fostering Family Planning.

In the Public Health Nurse Training Course which commenced in June, the Senior Assistant Health Officer, two Doctors and the Senior Sister gave a series of lectures at this Course, and the students were given all the facilities for observation and experience in the practical aspects of the work carried on at the Institute of Health and other City Clinics. These facilities were also made available to Medical Students doing their Public Health Course and eight Pædiatric Nurse Trainees.

STAFF CHANGES

Appointments

Mr. M. R. Marcus was appointed Temporary Secretary in the Administrative Section on 30th July, 1960.

Dr. Ho Chee Heng, Temporary Assistant Health Officer who resigned on 17th November, 1960, was reappointed to a similar post on 22nd December, 1960.

Four Clerks, one Superintendent Muslim Cemetery, one Hospital Assistant, five Midwives, one Creche Assistant, five Watchmen and six Attendants were appointed in a temporary capacity.

Retirements

Mr. Yeo Joo Lim, Secretary, retired on 22nd July, 1960.

Three Watchmen and one Attendant also retired during the year.

Resignations

The following Junior and Subordinate officers resigned during the year:—

One Public Health Inspector, one Health Visitor, two Staff Nurses, one Clerk, one Nursing Assistant, one Creche Assistant, two Temporary Midwives, one Senior Attendant, four Attendants, one Junior Attendant and one Watchman.

Termination of Service

The services of a Temporary Physiotherapist, one Clerk and one Attendant were terminated. One Store Attendant was dismissed from the service on court conviction. One post of Junior Overseer was declared vacant on the holder of the post absenting himself without authority. The services of a Senior Laboratory Assistant were terminated on medical grounds.

Promotions

The following staff were promoted during the year:—

Two Clerks as Section Inspectors, Water Department.

One Temporary Laboratory Assistant as Overseer, Chemical Treatment, Water Department.

One Junior Overseer as Assistant Superintendent, Hindu Cemetery.

One Senior Attendant as Market Keeper, Markets and Hawkers Department.

One Attendant as Meter Reader, Treasurer's Department.

One Temporary Watchman as Caretaker, Labour and Welfare Department.

General

Dr. Ng See Yook, City Health Officer, was seconded to the Ministry of Health, officiating in the post of Director of Medical Services and Permanent Secretary as from 17th October, 1960, and most of his duties were carried out by Dr. V. M. S. Thevathasan, Senior Assistant Health Officer.

Dr. Chan Tuck Kin, Assistant Health Officer (Maternity and Child Welfare), who proceeded on no-pay leave on 11th July, 1959, to the United Kingdom for post graduate course, resumed duty on 30th December, 1960, having obtained the Diploma of Child Health.

Health Visitors Tay Chee Chee, Loke Low Cheng, Lau Gek Choo and Heng Bok Lan attended the Public Health Nursing Course with effect from 20th June, 1960, for one academic year.

Mr. P. M. Balasandren, Rodent Overseer, died on 16th August, 1960.

NG SEE YOOK, L.M.S., D.P.H.
City Health Officer.

Table 1
NOTIFIABLE INFECTIOUS DISEASES

The number of cases notified in persons who were stated to be ordinarily resident within the City Area in 1960 and in the previous five years are shown in the table which follows:—

| | 1955 | 1956 | 1957 | 1958 | 1959 | Average for 5 years | 1960 |
|----------------------|-------|-------|-------|-------|-------|---------------------------|-------|
| Small-pox | .. | .. | .. | .. | 10 | 2.0 | .. |
| Plague | .. | .. | .. | .. | .. | .. | .. |
| Cholera | .. | .. | .. | .. | .. | .. | .. |
| Typhoid Fever | 100 | 74 | 85 | 103 | 99 | 92.2 | 98 |
| Para-typhoid Fever | .. | 2 | 1 | .. | 1 | .8 | 3 |
| Diphtheria | 347 | 425 | 576 | 414 | 435 | 439.4 | 555 |
| Cerebro-Spinal Fever | 1 | 1 | .. | .. | .. | .4 | .. |
| Typhus Fever* | 4† | 5‡ | 1§ | 1§ | 1 | 2.4 | 1\|\| |
| Scarlet Fever | .. | .. | .. | .. | .. | .. | .. |
| Leprosy | 120 | 115 | 88 | 84 | 103 | 102.0 | 119 |
| Poliomyelitis | 9 | 26 | 41 | 255 | 37 | 73.6 | 119 |
| Anthrax | .. | .. | .. | .. | .. | .. | .. |
| Puerperal Fever | 60 | 64 | 84 | 81 | 120 | 81.8 | 76 |
| Erysipelas | 10 | 3 | 4 | 2 | 1 | 4.0 | 3 |
| Chicken-pox | 1,687 | 1,402 | 980 | 524 | 1,234 | 1,165.4 | 1,800 |
| Tuberculosis | 2,979 | 2,835 | 2,559 | 2,995 | 4,438 | 3,161.2 | 3,857 |
| Total | 5,317 | 4,952 | 4,419 | 4,459 | 6,479 | 5,125.2 | 6,631 |

* Under the heading of Typhus are included Tsutsugamushi or Scrub Typhus of Malaya (Mite Borne) and Flea Borne (Urban Type Tropical Typhus). Louse Borne Typhus has not been seen in Singapore.
† 2 Flea Borne and 2 Mite Borne.
‡ Flea Borne.
§ Mite Borne.
|| Louse Borne.

Table 2

NOTIFIABLE INFECTIOUS DISEASES BY RACES FOR THE YEAR 1960

| | Euro- peans | Eura- sians | Chinese | Malays | Indians | Others | Total |
|--------------------------------|----------------|----------------|------------------|---------------|---------------|------------|------------------|
| Typhoid Fever .. | — (—) | — (—) | 74 (27) | 8 (52) | 12 (2) | 4 (—) | 98 (81)* |
| Diphtheria .. | — (1) | 4 (—) | 496 (75) | 30 (10) | 23 (4) | 2 (—) | 555 (90) |
| Chicken-pox .. | 5 (5)* | 23 (11) | 607 (161) | 326 (118) | 776 (143) | 63 (12) | 1,800 (450)* |
| Puerperal Fever .. | — (—) | — (—) | 11 (3) | 62 (3) | 3 (2) | — (—) | 76 (8) |
| Poliomyelitis .. | — (1) | — (—) | 96 (60) | 6 (6) | 15 (11) | 2 (—) | 119 (78) |
| Cerebro-spinal Fever .. | — (—) | — (—) | — (—) | — (—) | — (—) | — (—) | — (—) |
| Para-typhoid Fever .. | — (—) | — (—) | 2 (—) | — (—) | 1 (—) | — (—) | 3 (—) |
| Tuberculosis .. | — (—) | — (—) | 3,346 (941) | 257 (164) | 231 (77) | 23 (18) | 3,857 (1,200) |
| Small-pox .. | — (—) | — (—) | — (—) | — (—) | — (—) | — (—) | — (—) |
| Leprosy .. | — (—) | — (—) | 96 (22) | 9 (3) | 14 (2) | — (—) | 119 (27) |
| Typhus Fever .. | — (—) | — (—) | — (—) | — (—) | 1 (2) | — (1) | 1† (3)‡ |
| Erysipelas .. | — (—) | — (—) | 3 (—) | — (—) | — (—) | — (—) | 3 (—) |
| Total .. | 5 (7)* | 27 (11) | 4,731 (1,289) | 698 (356)* | 1076 (243) | 94 (31) | 6,631 (1,937) |

* One Imported case of Typhoid.

One Imported case of Chicken-pox.

† Louse Borne.

‡ Flea Borne.

The figures not in brackets are of cases notified in persons ordinarily resident in the City Area.

The figures in brackets are Imported Cases and cases from Rural Board treated in Hospitals or Institutions in the City Area but not ordinarily resident in the City Area.

Table 3

NOTIFIABLE INFECTIOUS DISEASES BY MONTHS FOR THE YEAR 1960
(Figures in brackets are cases in non-residents)

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|----------------------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|-----------------|
| Typhoid Fever | 10 (4) | 14 (5)* | 5 (—) | 4 (1) | 12 (2) | 10 (—) | 15 (2) | 7 (1) | 6 (52) | 4 (5) | 5 (6) | 6 (3) | 98 (81)* |
| Diphtheria | 54 | 47 | 42 | 36 | 40 | 55 | 61 | 41 | 41 | 37 | 48 | 53 | 555 |
| Chicken-pox | (5) | (6) | (7) | (11) | (9) | (7) | (7) | (4) | (9) | (6) | (7) | (12) | (90) |
| | 142 | 190 | 259 | 210 | 182 | 118 | 107 | 94 | 105 | 154 | 132 | 107 | 1,800 |
| Puerperal Fever | (27) | (20)* | (52) | (38) | (40) | (30) | (39) | (58) | (44) | (29) | (24) | (49) | (450)* |
| | 5 | 2 | 6 | 6 | 7 | 8 | 6 | 12 | 7 | 5 | 7 | 5 | 76 |
| Poliomyelitis | (—) | (—) | (—) | (1) | (4) | (1) | (2) | (—) | (—) | (—) | (—) | (—) | (8) |
| | 6 | 7 | 4 | 4 | 8 | 16 | 14 | 19 | 22 | 9 | 5 | 5 | 119 |
| Cerebro-Spinal Fever | (1) | (4) | (—) | (3) | (3) | (6) | (5) | (15) | (13) | (8) | (10) | (10) | (78) |
| | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Leprosy | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) |
| | 8 | 8 | 11 | 18 | 5 | 12 | 6 | 12 | 9 | 11 | 9 | 10 | 119 |
| Typhus Fever | (3) | (2) | (3) | (5) | (1) | (2) | (1) | (1) | (2) | (—) | (—) | (7) | (27) |
| | — | — | — | — | — | — | — | — | — | — | — | — | 1† |
| Erysipelas | (—) | (1) | (—) | (—) | (2) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (3)‡ |
| | — | — | — | — | 1 | — | 1 | — | — | 1 | — | — | 3 |
| Small-pox | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) |
| | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Cholera | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) |
| | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Scarlet Fever | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) |
| | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Para-typhoid Fever | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | (—) | 1 | 1 | 3 |
| | — | 1 | — | — | — | — | — | — | — | — | (—) | (—) | (—) |
| Total | 225 (40) | 269 (38)* | 327 (62) | 278 (59) | 255 (61) | 219 (46) | 211 (56) | 185 (79) | 190 (120) | 221 (48) | 207 (47) | 187 (81) | 2,774 (737)* |

* One imported case of Typhoid.

† One imported case of Chicken-pox.

‡ Louse Borne.

§ Flea Borne.

Table 4

POLIOMYELITIS

CONFIRMED CASES NOTIFIED IN 1960 BY RACES, SEX AND AGE GROUPS

Table includes imported cases as well as those in City Resident (Cases in service personnel and families included)

| | Europeans | | | Eurasians | | | Chinese | | | Malays | | | Indians | | | Others | | | Total | | |
|------------|-----------|----|----|-----------|----|----|---------|----|-----|--------|----|----|---------|----|----|--------|----|----|-------|----|-----|
| | M. | | T. | M. | | T. | M. | | T. | M. | | T. | M. | | T. | M. | | T. | M. | | T. |
| | | | | | | | | | | | | | | | | | | | | | |
| 0- 5 years | .. | .. | .. | .. | .. | .. | 90 | 55 | 145 | 7 | 4 | 11 | 17 | 10 | 27 | 1 | .. | 1 | 115 | 69 | 184 |
| 5-10 " | .. | .. | .. | .. | .. | .. | 4 | 3 | 7 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | 4 | 4 | 8 |
| 10-15 " | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | 2 | 2 |
| 15-20 " | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20-25 " | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 25-35 " | 1 | .. | 1 | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | 1 | 2 | 3 |
| 35-45 " | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 45-55 " | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Total | 1 | .. | 1 | .. | .. | .. | 94 | 60 | 154 | 7 | 4 | 11 | 17 | 12 | 29 | 1 | 1 | 2 | 120 | 77 | 197 |

78 of the 197 confirmed cases of Poliomyelitis notified within the City Area were non residents.

Table 5

POLIOMYELITIS CASES NOTIFIED AND CONFIRMED IN 1960
Under 5 years of age (Resident and non-resident)
Cases in Service Personnel and Families included

| Races | 0-1 year | | 1-2 years | | 2-3 years | | 3-4 years | | 4-5 years | | Total under 5 years | Total over 5 years |
|-----------|----------|----|-----------|----|-----------|----|-----------|----|-----------|----|---------------------|--------------------|
| | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | | |
| Europeans | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Eurasians | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Chinese | 21 | 15 | 30 | 20 | 20 | 6 | 12 | 9 | 7 | 5 | 145 | 9 |
| Malays | 3 | 1 | 2 | 2 | 1 | 1 | 1 | .. | .. | .. | 11 | .. |
| Indians | 5 | 2 | 7 | 4 | 3 | 3 | 2 | 1 | .. | .. | 27 | 2 |
| Others | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 |
| Total | 29 | 18 | 40 | 26 | 24 | 10 | 15 | 10 | 7 | 5 | 184 | 13 |

Table 6

PERCENTAGE OF PARALYTIC AND NON-PARALYTIC POLIOMYELITIS
CASES TREATED AT MIDDLETON HOSPITAL 1959 AND 1960.

| | | | | 1959 | 1960 |
|---|----|----|----|------|------|
| Total cases treated at Middleton Hospital | .. | | | 66 | 201 |
| Paralytic cases | .. | .. | .. | 57 | 192 |
| Non-paralytic cases | .. | .. | .. | 9 | 9 |
| Paralytic cases | .. | .. | .. | 86% | 95% |

INSTITUTIONS, ETC. WHENCE TUBERCULOSIS NOTIFICATIONS
WERE RECEIVED

3,857 cases of Tuberculosis (all types) in City residents and 1,200 in non-residents that is 5,057 in all, were notified during the year. 18 of these were not ordinarily resident in the State.

| Notified by | R.S.T.C. | T.T.S. Clinic | General Hospital | Total R.S.T.C. and Hospitals | Private Practi- tioners and others | Total |
|--------------------------------|----------|------------------|---------------------|---------------------------------------|--|-------|
| Number of cases notified .. | 1,459 | 2,468 | 90 | 4,017 | 1,040 | 5,057 |

NOTIFICATIONS OF TUBERCULOSIS (ALL TYPES) BY SEX
AND AGE GROUPS 1960 (CITY RESIDENTS ONLY)

| Sex | | | AGE GROUPS | | | | | |
|---------|----|----|--------------|---------------|----------------|----------------|----------------|------------------|
| | | | 0-5 years | 5-10 years | 10-15 years | 15-20 years | 20-45 years | Over 45 years |
| Males | .. | .. | 14 | 16 | 9 | 123 | 1,244 | 1,527 |
| Females | .. | .. | 18 | 12 | 14 | 62 | 478 | 340 |
| Total | .. | | 32 | 28 | 23 | 185 | 1,722 | 1,867 |

Table 1

GENERAL MEASURES TAKEN TO PREVENT IMPORTATION AND
SPREAD OF INFECTIOUS DISEASES

PASSENGERS UNDER SURVEILLANCE DURING THE YEAR 1960

| | | |
|--|----|-----|
| Number of Passenger under surveillance | .. | 121 |
| Number of Passenger Undertakings received | .. | 107 |
| Number of Persons seen | .. | 106 |
| Number of Persons not seen and could not be traced | .. | 17 |

Table 2

HOUSES QUARANTINED, DISINFECTED, AND INFECTIOUS CASES
REMOVED TO INFECTIOUS HOSPITAL, TRAFALGAR HOSPITAL

| | | | | |
|---|----|----|----|-------|
| Houses quarantined | .. | .. | .. | — |
| Houses Disinfected | .. | .. | .. | 1,535 |
| Infectious cases removed to Infectious Hospital | .. | | | 185 |
| Leper cases removed to Trafalgar Hospital | .. | | | — |

Table 3

VACCINATIONS BY CITY VACCINATORS, MEDICALMEN, PRIVATE
AND GOVERNMENT VACCINATORS
1960

| ———— | Successful | Modified | Failed | Not seen | Total |
|--|------------|----------|--------|----------|--------|
| City Vaccinators | 27,266 | 2 | 8 | 925 | 28,201 |
| Medicalmen | 8,534 | .. | 65 | .. | 8,699 |
| Private and Government Vaccinators | 123 | .. | .. | .. | 123 |
| Total .. | 36,023 | 2 | 73 | 925 | 37,023 |

Table 4

VACCINATION BY RACE AND AGE GROUPS, 1960

| Race | Under 6 months | 6–12 months | 1–5 years | Over 5 years | Total |
|-----------------|-------------------|----------------|--------------|-----------------|--------|
| Chinese | 20,358 | 7,381 | 748 | 42 | 28,529 |
| Malays | 4,104 | 1,284 | 88 | 2 | 5,478 |
| Indians | 2,143 | 532 | 32 | .. | 2,707 |
| Eurasians | 169 | 67 | 4 | .. | 240 |
| Europeans | 32 | 5 | .. | .. | 37 |
| Others | 28 | 4 | .. | .. | 32 |
| Total .. | 26,834 | 9,273 | 872 | 44 | 37,023 |

Table 1
BIRTHS AND STILL-BIRTHS

The following is the number of births for each month of the year, the 1959 figures being also shown:—

| Month | | 1959 | 1960 | Month | | 1959 | 1960 |
|----------|-------|--------|--------|-----------|-------|--------|--------|
| January | .. .. | 3,835 | 4,026 | July | .. .. | 3,965 | 4,177 |
| February | .. .. | 3,483 | 3,697 | August | .. .. | 4,172 | 4,302 |
| March | .. .. | 3,928 | 3,982 | September | .. .. | 4,264 | 4,251 |
| April | .. .. | 3,888 | 3,976 | October | .. .. | 4,532 | 4,768 |
| May | .. .. | 4,048 | 4,248 | November | .. .. | 4,337 | 4,299 |
| June | .. .. | 3,882 | 4,242 | December | .. .. | 4,120 | 4,423 |
| Total | | 23,064 | 24,171 | Total | | 25,390 | 26,220 |

Table 2

The births registered by races were:—

| | | 1959 | | | 1960 | | |
|-----------|-------|--------|---------|--------|--------|---------|--------|
| | | Males | Females | Total | Males | Females | Total |
| Europeans | .. .. | 444 | 437 | 881 | 165 | 148 | 313 |
| Eurasians | .. .. | 159 | 139 | 298 | 164 | 181 | 345 |
| Chinese | .. .. | 18,934 | 18,007 | 36,941 | 19,847 | 18,345 | 38,192 |
| Malays | .. .. | 3,042 | 2,698 | 5,740 | 3,463 | 3,172 | 6,635 |
| Indians | .. .. | 2,168 | 2,072 | 4,240 | 2,266 | 2,207 | 4,473 |
| Others | .. .. | 319 | 275 | 594 | 250 | 183 | 433 |
| Total | | 25,066 | 23,628 | 48,694 | 26,155 | 24,236 | 50,391 |

Table 3

The birth rate for each race in 1960 and the corresponding rate for 1959 are shown in the table which follows:—

| | | | | | 1959 | 1960 |
|--------------------|----|----|----|----|-------|-------|
| Europeans | .. | .. | .. | .. | 83.11 | 30.69 |
| Eurasians | .. | .. | .. | .. | 43.85 | 55.65 |
| Chinese | .. | .. | .. | .. | 47.89 | 48.13 |
| Malays | .. | .. | .. | .. | 51.85 | 57.55 |
| Indians | .. | .. | .. | .. | 49.13 | 50.83 |
| Others | .. | .. | .. | .. | 69.07 | 51.55 |
| All Races Combined | .. | .. | .. | .. | 49.00 | 49.22 |

Table 4

*The table which follows, shows the number of live-births by race and sex that occurred at the Kandang Kerbau Maternity Hospital in 1960 and also the percentage of the total registered live-births of each race born at this hospital:—

| | | | 1960 | | | Percentage of total births registered by race born at Kandang Kerbau Maternity Hospital | |
|-----------------|----|----|--------|---------|------------|---|-------|
| | | | Males | Females | Both Sexes | 1959 | 1960 |
| Chinese | .. | .. | 15,490 | 14,214 | 29,704 | 75.47 | 77.78 |
| Indians | .. | .. | 1,756 | 1,693 | 3,449 | 78.70 | 77.11 |
| Malays | .. | .. | 1,218 | 1,085 | 2,303 | 28.62 | 34.71 |
| Europeans | .. | .. | 15 | 14 | 29 | 10.90 | 9.27 |
| Eurasians | .. | .. | 95 | 113 | 208 | 75.84 | 60.29 |
| Others | .. | .. | 160 | 131 | 291 | 45.45 | 67.21 |
| Total All Races | .. | .. | 18,734 | 17,250 | 35,984 | 68.69 | 71.41 |

Table 5

The percentage of the total births registered by races in the Census years 1911, 1921, 1931, 1947 and in 1953—1960 is shown in the table which follows:—

| Year | | Total Births | Chinese | Malays | Indians | Other Races | Percentage of Total Births | | | |
|------|----|--------------|---------|--------|---------|-------------|----------------------------|--------|---------|-------------|
| | | | | | | | Chinese | Malays | Indians | Other Races |
| 1911 | .. | 5,560 | 3,750 | 1,051 | 406 | 353 | 67.4 | 18.18 | 7.3 | 7.52 |
| 1921 | .. | 10,237 | 7,789 | 1,270 | 640 | 538 | 76.0 | 12.4 | 6.2 | 5.26 |
| 1931 | .. | 16,488 | 13,229 | 1,758 | 917 | 584 | 80.23 | 10.66 | 5.56 | 3.54 |
| 1947 | .. | 30,548 | 24,247 | 3,233 | 745 | 2,323 | 79.3 | 10.5 | 7.6 | 2.44 |
| 1951 | .. | 34,776 | 26,686 | 3,542 | 2,819 | 729 | 79.61 | 10.19 | 8.11 | 2.10 |
| 1952 | .. | 36,529 | 28,853 | 3,842 | 3,097 | 737 | 78.99 | 10.52 | 8.48 | 2.02 |
| 1953 | .. | 39,322 | 31,076 | 4,062 | 3,387 | 798 | 79.03 | 10.33 | 8.61 | 2.03 |
| 1954 | .. | 40,935 | 32,018 | 4,466 | 3,468 | 983 | 78.22 | 10.91 | 8.47 | 2.40 |
| 1955 | .. | 42,090 | 32,830 | 4,564 | 3,650 | 1,046 | 78.00 | 10.84 | 8.67 | 2.49 |
| 1956 | .. | 44,044 | 34,500 | 4,679 | 3,801 | 1,064 | 78.33 | 10.62 | 8.63 | 2.42 |
| 1957 | .. | 46,503 | 36,367 | 4,849 | 4,198 | 1,089 | 78.20 | 10.43 | 9.03 | 2.34 |
| 1958 | .. | 47,106 | 35,790 | 5,426 | 4,174 | 1,716 | 75.98 | 11.52 | 8.86 | 3.64 |
| 1959 | .. | 48,694 | 36,941 | 5,740 | 4,240 | 1,773 | 75.86 | 11.79 | 8.71 | 3.64 |
| 1960 | .. | 50,391 | 38,192 | 6,635 | 4,473 | 1,091 | 75.79 | 13.17 | 8.88 | 2.16 |

Table 6

The Still-births registered in 1960 and 1959 are shown in the table which follows:—

| | | | 1960 | | | 1959 | | |
|-----------|----|----|-------|---------|-------|-------|---------|-------|
| | | | Males | Females | Total | Males | Females | Total |
| Europeans | .. | .. | 2 | — | 2 | 4 | 9 | 13 |
| Eurasians | .. | .. | 2 | 1 | 3 | 2 | 5 | 7 |
| Chinese | .. | .. | 255 | 253 | 508 | 218 | 211 | 432* |
| Malays | .. | .. | 73 | 78 | 151 | 90 | 77 | 168‡ |
| Indians | .. | .. | 40 | 58 | 98 | 67 | 59 | 128† |
| Others | .. | .. | 7 | 5 | 12 | 6 | 5 | 11 |
| Total | .. | | 379 | 395 | 774 | 387 | 366 | 759§ |

Note:—Figures in the above table exclude 15 Still-births of wives of non-locally domiciled personnel (including United Kingdom-based civilians employed by the Services).

* Includes 3 unknown sex.

† Includes 2 unknown sex.

‡ Includes 1 unknown sex.

§ Includes 6 unknown sex.

Table 7

The percentage of illegitimate births over live-births was .09 for the year 1960 and the table below shows the sex and racial groups of mothers:—

| | | | | Male | Female | Total |
|------------------------|----|----|----|------|--------|-------|
| | | | | | | |
| Europeans | .. | .. | .. | — | — | — |
| Eurasians | .. | .. | .. | 2 | 1 | 3 |
| Chinese | .. | .. | .. | 18 | 18 | 36 |
| Malays | .. | .. | .. | 1 | — | 1 |
| Indians and Pakistanis | .. | .. | .. | 2 | 2 | 4 |
| Others | .. | .. | .. | 1 | 2 | 3 |
| Total | .. | | | 24 | 23 | 47 |

Table 1
DEATHS

The following return shows the number of deaths and the death rate for each month of the year:—

| Month | | | No. of Deaths | Death Rate | Month | | | No. of Deaths | Death Rate |
|----------|----|----|---------------|------------|-----------|----|----|---------------|------------|
| January | .. | .. | 682 | 7.85 | July | .. | .. | 681 | 7.84 |
| February | .. | .. | 652 | 8.31 | August | .. | .. | 724 | 8.33 |
| March | .. | .. | 723 | 8.32 | September | .. | .. | 627 | 7.46 |
| April | .. | .. | 742 | 8.82 | October | .. | .. | 661 | 7.61 |
| May | .. | .. | 777 | 8.94 | November | .. | .. | 650 | 7.73 |
| June | .. | .. | 725 | 8.62 | December | .. | .. | 695 | 8.00 |

Table 2

The chief causes of death and the rate per 1,000 living for each disease in 1960 and 1959 are set in the table which follows:—

| | | | | 1959 | | 1960 | |
|---|----|----|--|-------|----------------|-------|----------------|
| | | | | Cases | Rate per Mille | Cases | Rate per Mille |
| Bronchitis and Pneumonia | .. | .. | | 1,012 | 1.02 | 992 | 0.97 |
| Tuberculosis | .. | .. | | 555 | 0.56 | 583 | 0.57 |
| Diarrhœa and Enteritis | .. | .. | | 444 | 0.45 | 427 | 0.42 |
| Diseases of early Infancy | .. | .. | | 646 | 0.65 | 747 | 0.73 |
| Infantile Convulsions (up to 5 years) | .. | .. | | 85 | 0.09 | 62 | 0.06 |
| Violence | .. | .. | | 627 | 0.63 | 515 | 0.50 |
| Heart Disease | .. | .. | | 640 | 0.64 | 722 | 0.71 |
| Old Age | .. | .. | | 495 | 0.5 | 404 | 0.39 |
| Cancer | .. | .. | | 900 | 0.91 | 945 | 0.92 |
| Nephritis | .. | .. | | 187 | 0.19 | 204 | 0.20 |
| Beri-Beri | .. | .. | | 46 | 0.05 | 51 | 0.05 |
| Diphtheria | .. | .. | | 32 | 0.03 | 38 | 0.04 |
| Malaria | .. | .. | | 7 | 0.007 | 3 | 0.003 |
| Dysenteries | .. | .. | | 18 | 0.02 | 23 | 0.02 |
| Typhoid | .. | .. | | 8 | 0.008 | 9 | 0.009 |
| Cerebral Hæmorrhage and other vesicular lesions | .. | .. | | 326 | 0.33 | 474 | 0.46 |

Table 3
SINGAPORE INFANT DEATHS REGISTERED IN 1960 IN CITY AREA BY AGE GROUP, RACIAL GROUP AND SEX

| AGE GROUP | TOTAL | | | MALAYSIANS | | CHINESE | | INDIANS AND PAKISTANIS | | EURASIANS | | EUROPEANS | | OTHERS | |
|-------------------------------|-----------|-----|-----|------------|-----|---------|-----|------------------------|----|-----------|----|-----------|----|--------|----|
| | M. and F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| | | | | | | | | | | | | | | | |
| Under 1 day | 292† | 173 | 117 | | | | | | | | | | | | |
| 1 day and under 2 days | 178 | 104 | 74 | 28 | 21 | 133 | 86 | 10 | 8 | .. | .. | 1 | 2 | 1 | .. |
| 2 days and under 3 days | 120 | 72 | 48 | 19 | 11 | 74 | 59 | 9 | 1 | .. | .. | 2 | 1 | .. | 2 |
| 3 days and under 4 days | 98 | 60 | 38 | 8 | 7 | 58 | 37 | 6 | 4 | .. | .. | .. | .. | .. | .. |
| 4 days and under 5 days | 51 | 26 | 25 | 13 | 9 | 40 | 28 | 7 | 1 | .. | .. | .. | .. | .. | .. |
| 5 days and under 6 days | 40 | 25 | 15 | 9 | 4 | 17 | 17 | .. | 3 | .. | 1 | .. | .. | .. | .. |
| 6 days and under 7 days | 24 | 13 | 11 | 4 | 1 | 17 | 14 | 3 | .. | .. | .. | .. | .. | 1 | .. |
| 7 days and under 14 days | 115 | 75 | 40 | 15 | 2 | 9 | 7 | .. | 2 | .. | .. | .. | .. | .. | .. |
| 14 days and under 21 days | 42 | 26 | 16 | 9 | 7 | 53 | 27 | 5 | 6 | 1 | .. | .. | .. | 1 | .. |
| 21 days and under 28 days | 37 | 16 | 21 | 4 | 6 | 15 | 7 | 1 | 3 | .. | .. | .. | .. | 1 | .. |
| | | | | | | 11 | 13 | 1 | 1 | .. | 1 | .. | .. | .. | .. |
| Neo-Natal Deaths | 997† | 590 | 405 | 113 | 74 | 427 | 295 | 42 | 29 | 1 | 2 | 3 | 3 | 4 | 2 |
| Under 28 days | 997† | 590 | 405 | | | | | | | | | | | | |
| 28 days and under 2 months | 117 | 66 | 51 | 113 | 74 | 427 | 295 | 42 | 29 | 1 | 2 | 3 | 3 | 4 | 2 |
| 2 months and under 3 months | 121 | 59 | 62 | 24 | 13 | 35 | 31 | 6 | 7 | .. | .. | .. | .. | 1 | .. |
| 3 months and under 4 months | 85 | 41 | 44 | 19 | 20 | 39 | 35 | 1 | 7 | .. | .. | .. | .. | .. | .. |
| 4 months and under 5 months | 76 | 43 | 33 | 15 | 10 | 16 | 27 | 8 | 7 | .. | .. | 1 | .. | 1 | .. |
| 5 months and under 6 months | 53 | 31 | 22 | 14 | 16 | 24 | 14 | 5 | 2 | .. | .. | .. | .. | .. | .. |
| 6 months and under 7 months | 70 | 33 | 37 | 12 | 8 | 17 | 11 | 1 | 3 | .. | .. | .. | 1 | .. | .. |
| 7 months and under 8 months | 68 | 37 | 31 | 12 | 5 | 18 | 27 | 3 | 3 | .. | 1 | .. | 1 | .. | .. |
| 8 months and under 9 months | 71 | 35 | 36 | 13 | 13 | 22 | 16 | 2 | 2 | .. | .. | .. | .. | 1 | .. |
| 9 months and under 10 months | 38 | 16 | 22 | 6 | 6 | 25 | 20 | 3 | 3 | .. | .. | .. | .. | .. | .. |
| 10 months and under 11 months | 49 | 22 | 27 | 8 | 8 | 7 | 14 | .. | 3 | .. | .. | .. | .. | .. | .. |
| 11 months and under 1 year | 32 | 12 | 20 | 6 | 4 | 5 | 15 | 1 | 1 | .. | .. | .. | .. | .. | .. |
| Infant Mortality* | 1,777† | 985 | 790 | 247 | 190 | 649 | 521 | 75 | 69 | 1 | 3 | 4 | 4 | 9 | 3 |

*Includes neo-natal deaths.
† Includes 2 of unknown sex (1 Malaysian and 1 Others).
Note:—Figures in the above table exclude 32 deaths of children under 1 year of non-locally domiciled Services personnel (including United Kingdom-based civilians employed by the Services).

Table 3—continued

SINGAPORE DEATHS REGISTERED IN 1960 IN THE CITY AREA BY AGE GROUP, RACIAL GROUP AND SEX

| AGE GROUP | TOTAL | | | MALAYSIANS | | CHINESE | | INDIANS AND PAKISTANIS | | EURASIANS | | EUROPEANS | | OTHERS | |
|-------------------|-----------|-------|-------|------------|-----|---------|-------|------------------------|-----|-----------|----|-----------|----|--------|----|
| | M. and F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| | | | | | | | | | | | | | | | |
| Under 1 year | 1,777* | 985 | 790 | 247 | 190 | 649 | 521 | 75 | 69 | 1 | 3 | 4 | 4 | 9 | 3 |
| 1 year and under | 245 | 135 | 110 | 30 | 27 | 81 | 66 | 22 | 15 | 1 | 1 | .. | .. | 1 | 1 |
| 2 years and under | 165 | 86 | 79 | 16 | 22 | 65 | 52 | 5 | 3 | .. | .. | .. | .. | .. | 2 |
| 3 years and under | 125 | 63 | 62 | 11 | 10 | 44 | 50 | 8 | 2 | .. | .. | .. | .. | .. | .. |
| 4 years and under | 75 | 38 | 37 | 4 | 3 | 33 | 31 | 1 | 3 | .. | .. | .. | .. | .. | .. |
| 5—9 years | 212 | 116 | 96 | 15 | 8 | 84 | 78 | 14 | 9 | 2 | .. | 1 | .. | .. | 1 |
| 10—14 years | 123 | 71 | 52 | 11 | 6 | 56 | 43 | 2 | 2 | .. | .. | .. | .. | 2 | .. |
| 15—19 years | 100 | 63 | 37 | 8 | 8 | 51 | 27 | 4 | 1 | .. | .. | .. | .. | .. | 1 |
| 20—24 years | 127 | 70 | 57 | 10 | 13 | 52 | 39 | 6 | 4 | .. | .. | 2 | .. | .. | 1 |
| 25—29 years | 130 | 78 | 52 | 6 | 8 | 63 | 37 | 8 | 4 | .. | .. | 1 | .. | .. | 1 |
| 30—34 years | 180 | 102 | 78 | 10 | 13 | 68 | 54 | 20 | 11 | .. | .. | .. | .. | 4 | .. |
| 35—39 years | 227 | 145 | 82 | 18 | 9 | 95 | 69 | 26 | 4 | 2 | .. | 3 | .. | 1 | .. |
| 40—44 years | 346 | 219 | 127 | 12 | 18 | 147 | 98 | 51 | 8 | 4 | 2 | 2 | 1 | 3 | .. |
| 45—49 years | 453 | 322 | 131 | 22 | 18 | 248 | 105 | 45 | 6 | 2 | 2 | 3 | .. | 2 | .. |
| 50—54 years | 658 | 455 | 203 | 31 | 24 | 349 | 166 | 67 | 5 | 2 | 4 | 2 | 2 | 4 | 2 |
| 55—59 years | 690 | 492 | 198 | 37 | 20 | 394 | 165 | 51 | 8 | 3 | 2 | 4 | .. | 3 | 3 |
| 60—64 years | 745 | 490 | 255 | 47 | 25 | 393 | 204 | 42 | 15 | 5 | 3 | 3 | 3 | 3 | 5 |
| 65—69 years | 679 | 422 | 257 | 31 | 20 | 364 | 218 | 16 | 9 | 4 | 7 | 1 | 1 | 4 | 2 |
| 70—74 years | 542 | 287 | 255 | 12 | 24 | 254 | 224 | 10 | 4 | 4 | 1 | 3 | 2 | 4 | .. |
| 75—79 years | 368 | 163 | 205 | 10 | 11 | 145 | 187 | 3 | 4 | 1 | 1 | 3 | 2 | 1 | .. |
| 80—84 years | 227 | 74 | 153 | 6 | 13 | 60 | 132 | 7 | 2 | .. | 2 | .. | 2 | 1 | 2 |
| 85 years and over | 138 | 33 | 105 | 5 | 13 | 24 | 88 | 1 | 1 | .. | 2 | .. | .. | 3 | 1 |
| Unknown | 7† | 6 | .. | .. | .. | 4 | .. | 1 | .. | .. | .. | .. | .. | 1 | .. |
| Total | 8,339‡ | 4,915 | 3,421 | 599 | 503 | 3,723 | 2,654 | 485 | 189 | 31 | 31 | 31 | 19 | 46 | 25 |

* Includes 2 unknown sex (1 Malaysian and 1 Others). † Includes 1 unknown sex (Others). ‡ Includes 3 unknown sex.

Note:—Figures in the above table exclude 61 deaths of non-locally domiciled Services personnel (including United Kingdom based civilians employed by the Services) and their families.

Table 4
INFANTILE MORTALITY BY RACES, 1951-1960

| Year | | Europeans | Eurasians | Chinese | Malays | Indians | Others | All Races |
|------|----|-----------|-----------|---------|--------|---------|--------|-----------|
| 1951 | .. | 21.7 | 41.1 | 73.7 | 130.4 | 68.5 | 158.2 | 78.79 |
| 1952 | .. | 35.7 | 45.6 | 71.0 | 120.8 | 64.9 | 102.6 | 75.34 |
| 1953 | .. | 21.7 | 64.6 | 66.7 | 116.7 | 63.8 | 127.3 | 71.54 |
| 1954 | .. | 29.5 | 37.2 | 52.5 | 110.4 | 64.3 | 68.1 | 59.66 |
| 1955 | .. | 12.2 | 36.7 | 45.0 | 106.9 | 47.7 | 43.6 | 51.60 |
| 1956 | .. | 9.3 | 27.8 | 38.8 | 96.0 | 34.7 | 21.5 | 44.02 |
| 1957 | .. | 10.8 | 27.0 | 37.1 | 89.7 | 42.2 | 49.1 | 42.94 |
| 1958 | .. | 27.9 | 46.2 | 40.3 | 89.7 | 40.7 | 38.0 | 45.81 |
| 1959 | .. | 15.89 | 13.42 | 33.05 | 73.87 | 29.72 | 33.67 | 37.17 |
| 1960 | .. | 25.56 | 11.59 | 30.63 | 65.86 | 32.19 | 27.71 | 35.26 |

Table 5

The main causes of death in infants and the rate per 1,000 live-births for each disease in 1960 and 1959 are set in the table which follows:—

| | | | | 1959 | | 1960 | |
|--------------------------------|----|----|--|-------|----------------|-------|----------------|
| | | | | Cases | Rate per Mille | Cases | Rate per Mille |
| Congenital syphilis | .. | .. | | 3 | 0.06 | .. | .. |
| Pneumonia and Bronchitis | .. | .. | | 452 | 9.28 | 386 | 7.66 |
| Diarrhoea and Enteritis | .. | .. | | 273 | 5.61 | 270 | 5.36 |
| Congenital Malformations | .. | .. | | 128 | 2.63 | 128 | 2.54 |
| Diseases of Early Infancy | .. | .. | | 644 | 13.23 | 744 | 14.76 |
| Tetanus | .. | .. | | 10 | 0.21 | 4 | 0.08 |
| Beri-beri | .. | .. | | 6 | 0.12 | 12 | 0.24 |
| Tuberculosis | .. | .. | | 8 | 0.16 | 3 | 0.06 |
| Ill-defined and unknown causes | .. | .. | | 103 | 2.12 | 74 | 1.47 |
| Other diseases | .. | .. | | 183 | 3.76 | 188 | 3.73 |
| Total | | | | 1,810 | 37.16 | 1,809 | 35.40 |

Table 6

1960 INFANTILE MORTALITY ACCORDING TO RACE, SEX AND AGE GROUPS

| Race | Sex | AGE GROUP | | | | | | | | |
|-------------|--------------|------------|-------------|--------------|--------------|----------------------|---------------|---------------|----------------|----------------|
| | | 0-1 Day | 1-7 Days | 1-4 Weeks | 0-4 Weeks | 4 Weeks- 3 Months | 3-6 Months | 6-9 Months | 9-12 Months | 0-12 Months |
| Europeans | { M. F. } | 1 2 | 2 1 | .. .. | 3 3 | .. .. | 1 .. | .. 1 | .. .. | 4 4 |
| | { M. F. } | .. .. | .. 1 | 1 1 | 1 2 | .. .. | .. .. | .. 1 | .. .. | 1 3 |
| Chinese | { M. F. } | 133 86 | 215 162 | 79 47 | 427 295 | 74 66 | 57 52 | 65 63 | 26 45 | 649 521 |
| | { M. F. } | 28 21 | 57 34 | 28 19 | 113 74 | 43 33 | 41 34 | 30 31 | 20 18 | 247 190 |
| Indians | { M. F. } | 10 8 | 25 11 | 7 10 | 42 29 | 7 14 | 14 12 | 8 8 | 4 6 | 75 69 |
| | { M. F. } | 1 .. | 1 2 | 2 .. | 4 2 | 1 .. | 2 1 | 2 .. | .. .. | 9 3 |
| Total Races | { M. F. } | 173 117 | 300 211 | 117 77 | 590 405 | 125 113 | 115 99 | 105 104 | 50 69 | 985 790 |
| Total | | 292* | 511 | 194 | 997* | 238 | 214 | 209 | 119 | 1,777* |

*Includes 2 unknown sex. (1 Malaysian and 1 Others).

Table 7
NEO-NATAL RATES BY RACES AND SEX (1958-60)

| | | 1958 | | | 1959 | | | 1960 | | |
|----|-----------|-------|---------|------------|-------|---------|------------|-------|---------|------------|
| | | | | | | | | | | |
| | | Males | Females | Both Sexes | Males | Females | Both Sexes | Males | Females | Both Sexes |
| 24 | Europeans | 24.02 | 19.37 | 21.81 | 9.01 | 9.15 | 9.08 | 18.18 | 20.70 | 19.17 |
| | Eurasians | 14.49 | 36.59 | 26.49 | 12.58 | 7.19 | 10.07 | 6.10 | 11.05 | 8.70 |
| | Chinese | 25.09 | 15.19 | 20.34 | 21.71 | 15.11 | 18.52 | 21.51 | 16.08 | 18.90 |
| | Malays | 43.69 | 31.11 | 37.56 | 35.17 | 24.46 | 30.14 | 32.63 | 23.33 | 28.18 |
| | Indians | 21.69 | 18.62 | 20.18 | 18.45 | 14.48 | 16.51 | 18.53 | 13.14 | 15.87 |
| | Others | 31.25 | 12.20 | 22.47 | 25.08 | 18.18 | 21.89 | 16.00 | 10.93 | 13.86 |

Table 8

The chief causes of the neo-natal deaths in infants in 1959 and 1960 are shown in the table which follows:—

| | 1959 | | 1960 | |
|---|--------------|--------------------------|--------------|--------------------------|
| | No. of Cases | % Total Neo-natal deaths | No. of Cases | % Total Neo-natal deaths |
| 1. Ill-defined diseases peculiar to early infancy and Immaturity .. | 251 | 26.39 | 200 | 20.06 |
| 2. Birth Injuries .. | 153 | 16.09 | 294 | 29.49 |
| 3. Post-natal asphyxia and atelectasis .. | 150 | 15.77 | 164 | 16.45 |
| 4. Infection of new born .. | 185 | 19.45 | 138 | 13.84 |
| 5. Hæmolytic disease of new born .. | 60 | 6.31 | 48 | 4.81 |
| 6. Other diseases of early infancy .. | 9 | 0.95 | 14 | 1.40 |
| 7. Congenital malformations .. | 73 | 7.68 | 67 | 6.72 |
| 8. Ill-defined and unknown causes .. | 32 | 3.36 | 25 | 2.51 |
| 9. Congenital syphilis .. | 2 | 0.21 | .. | .. |
| 10. Beri-beri .. | 1 | 0.11 | .. | .. |
| 11. Septicæmia and Pyæmia .. | 1 | 0.11 | .. | .. |
| 12. Tetanus .. | 8 | 0.84 | 4 | .40 |
| 13. Other diseases .. | 26 | 2.73 | 60 | 6.02 |
| Total .. | 951 | | 1,014 | |

Table 9

CERTIFICATION OF DEATHS, 1960

| By whom certified | Euro-peans | Eura-sians | Chinese | Malays | Indians | Others | Total |
|--------------------------|------------|------------|---------|--------|---------|--------|-------|
| Medical Practitioners .. | 35 | 49 | 4,301 | 576 | 398 | 47 | 5,406 |
| Inspecting Officers .. | 1 | 3 | 970 | 421 | 88 | 7 | 1,490 |
| Coroner .. | 14 | 10 | 1,094 | 88 | 187 | 18 | 1,411 |
| Police Officers .. | .. | .. | 12 | 18 | 1 | 1 | 32 |
| Total .. | 50 | 62 | 6,377 | 1,103 | 674 | 73 | 8,339 |

Table 10

In the table which follows are shown the percentage number of deaths the causes of which were certified by Medical Practitioners, Inspecting Registrars and the Coroner, in the years 1951 to 1960:—

| | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Medical Practitioners .. | 59.82 | 63.30 | 66.63 | 65.25 | 64.56 | 65.17 | 63.70 | 65.56 | 65.65 | 64.83 |
| Registrars .. | 30.10 | 25.90 | 22.99 | 22.45 | 22.22 | 21.09 | 20.70 | 19.02 | 17.69 | 17.87 |
| Coroner .. | 10.08 | 10.80 | 10.38 | 12.30 | 13.22 | 13.74 | 15.63 | 14.96 | 16.36 | 16.92 |
| Police Officers .. | .. | .. | .. | .. | .. | .. | .. | 0.46 | 0.3 | 0.38 |

Table 1
LICENCES ISSUED AND FEES COLLECTED

| Year | | | | LICENCES ISSUED | | | Total Fees |
|------|----|----|----|-----------------|--------------|------------------|------------|
| | | | | Total | Food By-laws | Offensive Trades | |
| | | | | | | | \$ c. |
| 1959 | .. | .. | .. | 2,080 | 1,659 | | 77,431 00 |
| | | | | | | 421 | 14,542 00 |
| | | | | | | | 91,973 00 |
| 1960 | .. | .. | .. | 2,059 | 1,636 | | 76,356 00 |
| | | | | | | 423 | 13,045 43 |
| | | | | | | | 89,401 43 |

Table 2
THE NUMBER OF ANIMALS SLAUGHTERED AT THE ABATTOIRS
IN 1959 AND 1960

| | | | | | 1959 | 1960 |
|-----------|----|----|----|----|---------|---------|
| Pigs | .. | .. | .. | .. | 436,452 | 435,124 |
| Sheep | .. | .. | .. | .. | 81,717 | 81,984 |
| Goats | .. | .. | .. | .. | 3,293 | 2,277 |
| Oxen | .. | .. | .. | .. | 5,868 | 6,219 |
| Buffaloes | .. | .. | .. | .. | 3,379 | 3,474 |
| Horses | .. | .. | .. | .. | 8 | 16 |
| Total | | | | | 530,717 | 529,094 |

CARCASES TOTALLY CONDEMNED AT THE ABATTOIRS
1960

| Swine | Sheep | Oxen | Buffaloes | Total Condemned |
|-------|-------|------|-----------|--------------------|
| 86 | 11 | 12 | 6 | 115 |

REVENUE

The total revenue excluding the rent received for use of chilling rooms from the Abattoirs in 1960 was \$1,028,734.15 as compared with \$1,033,833.25 for 1959.

Table 3
BURIAL GROUNDS

| 1960 | | | Burials and Cremations made in City Cemeteries and licensed burial grounds in City Area | Exhumations |
|-----------|----|----|---|-------------|
| Europeans | .. | .. | 43 | 2 |
| Eurasians | .. | .. | 73 | .. |
| Chinese | .. | .. | 4,007 and 1 ashes 6 exhumed remains (13) | 14 |
| Malays | .. | .. | 1,317 | .. |
| Indians | .. | .. | 629 and 1 exhumed remains (212) | 1 |
| Others | .. | .. | 62 and 3 ashes (2) | .. |
| Total | | | 6,131 and 4 ashes 7 exhumed remains (227) | 17 |

Figure in brackets denotes cremation.

ANTI-MOSQUITO DEPARTMENT

I HAVE THE HONOUR to submit the report on the work of the Anti-Mosquito Department for the year 1960.

INCIDENCE OF MALARIA

Fourteen cases of Malaria within the City were reported. All these cases were thoroughly investigated and all were found to be imported cases either from Hongkong, Indonesia or the Federation of Malaya. The malaria death rate was .004 per thousand within the City Limits.

TRAPPING OF ADULT MOSQUITOES

The three mosquito traps set in various parts of the City for the collection and identification of adult mosquitoes continued to provide a valuable check on our malarial control measures. For details, see Appendix A.

LARVÆ SEARCHING

15,877 collections of mosquito larvæ were brought by the field staff to the departmental laboratory for identification. As in the past a close watch for breeding of *A. sundaicus* was kept on all boats brought into the Singapore and Kallang Rivers for repairs. No breeding was found in any of the boats. Appendix B is an analysis of 1,000 consecutive larval collections showing the common breeding places within the City. Appendix C gives the total number of collections and the different vector species with their respective breeding places.

PERMANENT ANTI-MALARIAL WORKS

The areas under permanent control were extended by the construction of 1,022 yards of concrete anti-malarial drains and the laying of 392 yards of subsoil pipe lines. In addition, 906 yards of worn-out anti-malarial drains were reconstructed with new materials. Details of permanent anti-malarial works are listed in Appendix D. Minor repairs to existing permanent anti-malarial works were carried out as and when required and details of these are given in Appendix E.

PRAWN PONDS IN KALLANG BASIN

Prawn catching activities have ceased in this area, due to the gradual reclamation of the tidal swamp. The prawn ponds are now thrown open to the free ebb and flow of the tide. In spite of this, weekly inspections are carried out to ensure there are no breedings of *A. sundaicus*.

MAINTENANCE

Maintenance works by 10 gangs and 4 machine units were carried out in accordance with past practice. Five patrol gangs worked around the General Hospital, Tan Tock Seng Hospital, Kallang Basin, Tanjong Rhu, Katong and Geylang Areas, mainly to control the breeding of *A. sundaicus*. Altogether 297,069 yards of concrete drains and 378,931 yards of earth drains were

regularly maintained. 1,702 baskets of tins and other water-bearing receptacles were collected and disposed of. 31,888 yards of concrete drains were cleansed by contract labour at a monthly cost of \$5,200. These drains which were originally constructed to serve as anti-malarial drains are now serving more as sullage drains for developed areas.

LARVICIDAL WORKS

Anti-malarial mixture

A total of 74,307 gallons of anti-malarial mixture was used. To ensure that the anti-malarial mixture received was effective and according to specifications, regular field and laboratory tests were carried out. Apart from routine oiling, the department had to deal with many mosquito breeding places created through development of properties, damaged and blocked public and private roadside drains and the activities of squatters in kampongs.

Shell Malariol Emulsion.—42 gallons were used in places where an oily larvicide was undesirable.

Shell Malariol H.S.—357 gallons were used in fish and vegetable ponds in Ulu Pandan, Sungei Whampoa and the Kallang Basin Areas.

Gammexane Powder.—177 lb. were used against nuisance mosquito breeding in septic tanks and choked concrete drains.

Kerosene.—55 gallons were used in kampong wells against mosquito breeding.

Benzine with 10% D.D.T.: 455½ gallons were used along the margins of the McRitchie and Pierce Reservoirs. Malaria vectors (*A. letifer*) were found breeding in the creeks of McRitchie Reservoir. Periodical oiling with D.D.T. in benzine had to be carried out by this department. The cost was recovered from the Water Engineer's Department.

Dieldrex 15—One gallon was used through the Swing-fog machine against adult mosquitoes.

FILLING IN OF LOW-LYING AREAS

The filling of the extensive tidal swamp at Kolam Ayer Lane was continued by controlled tipping by the City Cleansing Department.

NOTICES

Sixty-four notices under the Destruction of Mosquitoes Ordinance were served. The majority of these were served on owners of lands which were either covered with undergrowth or low-lying and which provide mosquito breeding grounds due to stagnation of water.

KAMPONG SANITATION

(i) *Kampong Soo Poo (Kallang)*: To alleviate the floods and mosquito nuisance in this kampong, a length of approximately 106 yards of drain was constructed. This department supplied the materials and the labour was supplied by the Special Squad supervised by the P.W.D. The materials cost was \$1,086.00.

(ii) *Kampong Heap Guan San (Telok Blangah Area)*: Although approval to construct drains in this kampong was given in August 1960, it was agreed that such works should only commence after the kampong road was made up. This was completed in early December and work on the drains was commenced in the latter part of the same month and is now in progress.

(iii) *Kampong Bukit Permei*: It was decided to construct a concrete drain to serve a stand pipe. This department supplied the materials and the kampong people have volunteered to carry out the construction. The length of drain involved is 53 yards and the cost of materials supplied was \$350.

ANTI-FLY MEASURES

Our oilers helped to carry out anti-fly measures on many occasions.

LAYOUT PLANS

Comments on the anti-malarial point of view were given as and when development plans were referred to this department.

STAFF

A. Devaneson, a junior overseer, was dismissed by the Administrator, City Council, with effect from 12th February, 1960.

P. Singaravelu, a junior overseer, was transferred as Assistant Superintendent (Hindu Cemetery) with effect from 18th August, 1960.

LABOUR

| | | | | |
|--|----|----|----|-------|
| Authorised Labour Force | .. | .. | .. | 607 |
| Average monthly strength in payroll | .. | .. | .. | 549 |
| Percentage of shortage | .. | .. | .. | 9% |
| Number of working days in 1960 | .. | .. | .. | 314 |
| Number of man-days taken as sick leave | .. | .. | .. | 7,458 |
| Number of man-days taken as annual leave | .. | .. | .. | 5,090 |
| Number of man-days taken as holidays | .. | .. | .. | 6,547 |

434 different labourers took sick leave on at least one occasion during the year. This meant that 71 % of the total labour force went on sick leave once during the year. The average number of man-days lost per labourer on account of sickness was 13.6 days.

MISCELLANEOUS

(i) A close liaison was maintained with the District Councils, the Singapore Harbour Board, the Malayan Railway Authorities and the Army Department, all concerned with the control of mosquito breeding.

(ii) This department shifted from City Hall to 22 Kampong Java Road on 5th December, 1960.

(iii) The cost of malaria control per head of population within the City Limits was \$1.00 for the year.

SUMMARY OF WORKS AND COST FOR YEAR—1960

| Particulars | Labour | MATERIALS | | | Total |
|--|------------|-----------|----------|-----------|--------------|
| | | Mason | Machine | Larvicide | |
| | \$ c. | \$ c. | \$ c. | \$ c. | \$ c. |
| Major Works including $\frac{1}{3}$ cost of store labour .. | 107,906 47 | 17,358 70 | .. | .. | 125,265 17 |
| <i>Maintenance</i> | | | | | |
| Patrol Works, grass cutting, cleansing drains including tide-gate labour, hire and benzine | 562,965 93 | .. | 4,910 32 | .. | 567,876 25 |
| Larvicidal Works, trappers, oiling checkers and $\frac{1}{3}$ store labour .. | 116,120 33 | .. | .. | 44,737 79 | 160,858 12 |
| Repairs including $\frac{1}{3}$ store labour | 66,909 55 | 19,902 52 | .. | .. | 86,812 07 |
| Cleansing of drains by Contract Labour .. | 62,400 00 | .. | .. | .. | 62,400 00 |
| Total .. | 916,302 28 | 37,261 22 | 4,910 32 | 44,737 79 | 1,003,211 61 |
| Cost of Haulage .. | .. | .. | .. | .. | 22,777 95 |
| Grand Total .. | | | | | 1,025,989 56 |

I am, Sir,
Yours obediently,
Dr. NG CHENG HIN,
Assistant Health Officer (A.M.D.)

APPENDIX A

Mosquito traps set in the following areas with the results indicated below:—

| Locality | Number of Nights | <i>A. mac.</i> | <i>A. sund</i> | <i>A. letifer</i> | Other <i>Anoph.</i> | Others | Total |
|----------------------|------------------------|----------------|----------------|-----------------------|------------------------|--------|-------|
| Tanjong Rhu .. | 121 | .. | .. | .. | 4 | 1,052 | 1,056 |
| Soon Wing Road .. | 38 | .. | .. | .. | 8 | 565 | 573 |
| Kolam Ayer Lane .. | 121 | .. | .. | .. | 5 | 1,210 | 1,215 |
| MacRitchie Reservoir | 10 | .. | .. | .. | 9 | 96 | 105 |
| Sime Road .. | 70 | 1 | .. | .. | 17 | 613 | 631 |
| Aljunied Road .. | 19 | .. | .. | .. | 2 | 187 | 189 |
| Serangoon Road .. | 179 | .. | .. | .. | 10 | 2,104 | 2,114 |
| Kim Keat Road .. | 161 | .. | .. | .. | 162 | 1,857 | 2,019 |
| Jalan Mawar .. | 161 | .. | .. | .. | 3 | 2,071 | 2,074 |
| | .. | 1 | .. | .. | 220 | 9,755 | 9,976 |

1 *A. maculatus* and 217 other Anopheline females were trapped. In addition 9,755 adult mosquitoes were identified. Daily reports on adult catches were forwarded to the O.C. Hygiene and Malaria Control Unit, Singapore Base District, for information as requested.

PNG BOON HEE,
Laboratory Assistant (A.M.D.)

20th January, 1961.

APPENDIX B

1,000 consecutive collections from common breeding places:—

| | | |
|--------------------------|----|--------------|
| Roadside Concrete Drains | .. | 156 |
| Sullage Concrete Drains | .. | 69 |
| Sullage Earth Drains .. | .. | 119 |
| Concrete Drains .. | .. | 36 |
| Lorry Tracks | .. | 44 |
| Earth Ponds | .. | 18 |
| Grassy Pools | .. | 67 |
| Hyacinth Ponds | .. | 87 |
| Vegetable Ponds | .. | 102 |
| Stagnant Pools | .. | 113 |
| Earth Wells | .. | 69 |
| Concrete Wells | .. | 13 |
| Seepages .. | .. | 5 |
| Septic Tanks | .. | 7 |
| Water Pipe Stop Cocks | .. | 22 |
| New Building Excavations | .. | 8 |
| Silt Traps .. | .. | 22 |
| Fish Ponds | .. | 3 |
| Concrete Pond | .. | 1 |
| Concrete Tanks | .. | 5 |
| Boats .. | .. | 6 |
| Brick Well | .. | 1 |
| Disused Tins | .. | 2 |
| Disused Drums | .. | 8 |
| Disused Jars | .. | 8 |
| Disused Tyres | .. | 4 |
| Disused Buckets | .. | 5 |
| Total | .. | <u>1,000</u> |

PNG BOON HEE,
Laboratory Assistant (A.M.D.).

20th January, 1961.

APPENDIX C

15,877 collections of mosquito larvæ were brought to the laboratory for identification. 1 of them contained larvæ of *Anopheline sundaicus*, 28 contained larvæ of *Anopheline maculatus* and 9 contained larvæ of *Anopheline letifer*. The other 15,839 collections did not contain larvæ of malaria vectors.

The types of breeding places in which the larvæ of malaria vectors were found were as follows:—

A. sundaicus

| | | | |
|------------|----|----------|----------|
| Earth pool | .. | .. | 1 |
| | | Total .. | <u>1</u> |

A. maculatus

| | | | |
|---|----|----------|-----------|
| Earth wells | .. | .. | 6 |
| Concrete drains | .. | .. | 3 |
| Earth drains | .. | .. | 7 |
| Wooden Well | .. | .. | 1 |
| Seepages .. | .. | .. | 9 |
| Edges of creeks in MacRitchie Reservoir | .. | .. | <u>2</u> |
| | | Total .. | <u>28</u> |

A. letifer

| | | | |
|---|----|----------|----------|
| Edges of creeks in MacRitchie Reservoir | .. | .. | 8 |
| Earth Well | .. | .. | <u>1</u> |
| | | Total .. | <u>9</u> |

PNG BOON HEE,
Laboratory Assistant (A.M.D.).

20th January, 1961.

APPENDIX D

PERMANENT ANTI-MALARIAL WORKS CARRIED OUT DURING 1960

| Area No. | Name of Anti-Malarial Area | INVERTS | | | | | | | | | | SLABS | | | | SUB-PIPES | | | | Material Cost | Remarks |
|----------|---------------------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-----|-----|-----|-----------|-----|-----|--------------------------------|--|---------|
| | | 21" | | 18" | 15" | 12" | | 9" | | | 18" | | 15" | 12" | 8" | | 6" | 4" | | | |
| | | New | Old | New | New | Old | New | Old | New | Old | New | New | Old | New | New | Old | New | New | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 105 | Kg. Bt. Permei .. | 5 | .. | .. | 225 | 567 | 60 | 125 | 13 | .. | 421 | 6 | .. | 816 | .. | .. | 38 | .. | \$ c. 11,089 15 3,647 19 | Construction of subsidiary drain completed. | |
| 227 | Ulu Pandan .. | 200 | 48 | 81 | 15 | 132 | 6 | .. | 17 | .. | 952 | .. | .. | 8 | 130 | .. | 530 | 104 | 2,915 11 | Reconstruction of a worn out Anti-Malarial drain completed. | |
| 132 | Bugis Rubber Estate | 6 | .. | 5 | .. | .. | .. | .. | .. | .. | 30 | 100 | .. | .. | 1 | 130 | 2 | .. | 121 08 | Re-laying of sub-soil pipe lines and major repairs to Anti-Malarial drain completed. | |
| 172 | Sommerville Ravine | .. | .. | 404 | 238 | 30 | .. | 4 | .. | .. | 1,484 | .. | .. | .. | .. | .. | 170 | .. | 4,371 20 | Construction of subsidiary Anti-Malarial drains completed. | |
| 107 | Wayang Satu .. | .. | .. | 135 | .. | .. | 3 | .. | .. | .. | 319 | 52 | 19 | .. | .. | .. | .. | .. | 1,047 55 | Re-construction of Anti-Malarial drain. Completed. | |
| 144 | Hindoo Cemetery Ravine No. 1 .. | .. | .. | 585 | .. | 10 | .. | .. | .. | .. | 100 | .. | 124 | .. | .. | .. | 205 | .. | 3,313 98 | Reconstruction of Anti-Malarial drain. In progress. | |
| 114 | Dunearn Road .. | .. | .. | 132 | .. | .. | .. | 14 | .. | .. | 776 | 66 | .. | 71 | .. | .. | .. | .. | 1,684 35 | Reconstruction of Anti-Malarial drain. Completed. | |

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS

| Anti-Malarial Area | MATERIALS USED | | | | | | | | | | | | | | | | | | | | Labour Cost | Material Cost | | |
|------------------------------------|----------------|----|-----|----|-----|----|-----|----|-------|----|-----|----|-----|----|-----|----|----------------|----|----|----|-------------|---------------|----|---|
| | INVERTS | | | | | | | | SLABS | | | | | | | | SUB-SOIL PIPES | | | | | | | |
| | 21" | | 18" | | 15" | | 12" | | 9" | | 18" | | 15" | | 12" | | 8" | | 6" | | | | 4" | |
| | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | R | | | N | R |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Anderson Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 2. Barker Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 4. Claymore | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 5. Cluny Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 7. Glencaird | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 8. Kings Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 9. Nassim and Dalvey | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 12. Scott's Road Railway | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 13. Steven's Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 14. Watten Estate | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 15. Woodleigh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 16. Tversall Ponds | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 18. Hammer & Co. Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 19. Singapore Harbour Board Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 20. Jervois Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 25. Morse Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 27. Henderson Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 30. Orchard Road No. 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 32. Radin Mas | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 35. Tiong Bahru | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 36. Wishart Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 38. Alexandra Swamp | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 39. Balestier Plain | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 40. Cluny Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 41. Gallop Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 42. Grange Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 43. Holland Park No. 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 47. Newton Ponds | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 48. Rochalie Drive | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 49. Swettenham Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 50. Tanglin Barracks | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 53. Tanglin Hill No. 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 57. Bukit Brown Golf Club | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS

| Anti-Malarial Area | MATERIALS USED | | | | | | | | | | | | | | | | | | | Labour Cost \$ c. | Material Cost \$ c. | | | |
|--|----------------|----|-----|----|-----|-----|-------|-----|----|----|-----|-----|----------------|-----|-----|----|----|----|----|----------------------|------------------------|----|----------|---|
| | INVERTS | | | | | | SLABS | | | | | | SUB-SOIL PIPES | | | | | | | | | | | |
| | 21" | | 18" | | 15" | | 12" | | 9" | | 18" | | 15" | | 12" | | 8" | | 6" | | | 4" | | |
| | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | | | R | N | R |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 58. Kg. Java Area .. | .. | .. | .. | .. | 96 | 80 | .. | 85 | .. | .. | 18 | 210 | .. | .. | .. | .. | .. | .. | .. | .. | 666 | 03 | 162 08 | |
| 59. Moulmein Road .. | .. | .. | .. | .. | 6 | .. | 25 | .. | .. | .. | 6 | .. | .. | .. | 10 | .. | .. | .. | .. | .. | 89 | 34 | 83 66 | |
| 67. Spottiswoode Park .. | .. | .. | .. | .. | .. | .. | 30 | 10 | .. | .. | 50 | 35 | .. | .. | .. | .. | .. | .. | .. | .. | 349 | 00 | 125 46 | |
| 68. Pearl's Hill .. | .. | .. | .. | .. | .. | .. | 75 | .. | .. | .. | 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 559 | 50 | 166 84 | |
| 70. Chancery Lane No. 1 .. | .. | .. | .. | .. | .. | .. | 10 | .. | .. | .. | 5 | 20 | .. | .. | .. | .. | .. | .. | .. | .. | 106 | 00 | 29 92 | |
| 73. Mandalay Road .. | 15 | .. | 15 | .. | 30 | .. | 25 | .. | .. | .. | 56 | 302 | .. | .. | .. | .. | .. | .. | .. | 3 | 990 | 97 | 349 57 | |
| 75. Government Hill .. | .. | .. | 33 | .. | .. | .. | .. | .. | .. | .. | 20 | 106 | .. | .. | .. | .. | .. | .. | .. | .. | 424 | 33 | 212 39 | |
| 81. Mt. Rosie .. | 30 | .. | .. | .. | .. | .. | 70 | .. | 8 | 40 | 173 | 355 | .. | .. | .. | .. | .. | .. | .. | .. | 1,227 | 35 | 515 79 | |
| 85. Ewe Boon Road .. | .. | .. | .. | .. | 10 | 200 | .. | .. | .. | .. | .. | 80 | .. | .. | .. | .. | .. | .. | .. | .. | 279 | 82 | 27 48 | |
| 88. Jewish Cemetery .. | .. | .. | .. | .. | 15 | 140 | 53 | 15 | .. | .. | 20 | .. | 15 | .. | .. | .. | .. | .. | .. | .. | 714 | 16 | 221 40 | |
| 89. Silat Road .. | .. | .. | 72 | .. | .. | .. | .. | .. | .. | .. | 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 265 | 50 | 206 34 | |
| 91. Holland Bt. Timah .. | 182 | 52 | 44 | 57 | 20 | 432 | 49 | 35 | .. | 87 | 605 | 395 | .. | 150 | .. | .. | .. | .. | .. | .. | 3,679 | 76 | 1,655 99 | |
| 96. Western Reclamation .. | .. | .. | .. | .. | .. | .. | 5 | .. | .. | .. | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 139 | 91 | 25 73 | |
| 98. Keith Swamp .. | .. | .. | .. | .. | .. | .. | 10 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 51 | 25 | 57 34 | |
| 100. Adam Park .. | .. | .. | 11 | 15 | 1 | .. | 7 | 25 | .. | .. | 52 | 160 | .. | .. | .. | .. | .. | .. | .. | .. | 895 | 11 | 151 41 | |
| 101. MacPherson Road .. | 5 | .. | .. | .. | .. | 3 | 20 | 110 | .. | .. | 125 | 590 | .. | .. | .. | .. | .. | .. | .. | .. | 1,991 | 32 | 347 30 | |
| 105. Bukit Permai .. | 10 | .. | 33 | 55 | .. | .. | 25 | 40 | 10 | 15 | 85 | 365 | .. | 15 | .. | .. | .. | .. | .. | .. | 1,232 | 93 | 326 16 | |
| 107. Wayang Satu .. | 60 | .. | 11 | .. | 8 | .. | 41 | 28 | .. | .. | 125 | 740 | .. | .. | .. | .. | .. | .. | .. | .. | 1,749 | 44 | 460 51 | |
| 108. Berlayar Village .. | .. | .. | .. | .. | 10 | .. | 15 | .. | .. | .. | 35 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 543 | 52 | 133 55 | |
| 109. Mt. Pleasant Ravine .. | 93 | 51 | 10 | 52 | .. | .. | 26 | .. | .. | .. | 72 | 370 | .. | .. | .. | .. | .. | .. | .. | .. | 1,216 | 69 | 654 61 | |
| 110. McRitchie .. | 23 | 20 | 10 | 18 | 10 | .. | .. | .. | .. | .. | 20 | 200 | .. | .. | .. | .. | .. | .. | .. | .. | 574 | 97 | 158 54 | |
| 113. Kheam Hock Road .. | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | 4 | 40 | .. | .. | .. | .. | .. | .. | .. | .. | 53 | 10 | 21 16 | |
| 115. Alexandra Road .. | .. | .. | .. | .. | 3 | 3 | 25 | 47 | .. | .. | 68 | 830 | 20 | .. | .. | .. | .. | .. | .. | .. | 2,015 | 14 | 419 32 | |
| 116. Sungei Whampoa .. | .. | .. | 12 | 40 | 10 | 7 | 20 | .. | .. | .. | 34 | 365 | .. | .. | .. | .. | .. | .. | .. | .. | 972 | 51 | 185 19 | |
| 117. Telok Blangah Ravine .. | .. | .. | .. | 5 | .. | .. | 25 | 10 | 3 | .. | 45 | 155 | .. | .. | .. | .. | .. | .. | .. | .. | 701 | 89 | 183 84 | |
| 120. Kim Seng Road .. | 13 | 8 | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | 128 | 12 | 13 25 | |
| 121. Brick Factory .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 15 | .. | .. | .. | .. | .. | .. | .. | .. | 113 | 75 | 206 34 | |
| 122. Alexandra Road 4th Mile Ravine .. | .. | .. | .. | .. | .. | .. | 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 134 | 00 | 54 81 | |
| 123. Kg. Limau Ravine .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | 22 | 10 | .. | .. | .. | .. | .. | .. | .. | 95 | 50 | 8 95 | |
| 124. Cemetery Ravine .. | .. | .. | .. | .. | 10 | .. | .. | 20 | .. | .. | 25 | 20 | .. | .. | .. | .. | .. | .. | .. | .. | 176 | 75 | 68 88 | |
| 125. Faber Ridge Ravine .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 20 | .. | .. | .. | .. | .. | .. | .. | .. | 113 | 75 | 17 43 | |
| 129. Sungei Namley .. | 12 | 25 | 10 | 65 | .. | .. | 5 | .. | .. | .. | 45 | 176 | .. | .. | .. | .. | .. | .. | .. | .. | 321 | 40 | 168 43 | |
| 130. Mt. Washington Ravine .. | 60 | .. | 65 | 30 | 5 | 15 | 65 | 15 | .. | .. | 236 | 560 | .. | .. | .. | .. | .. | .. | .. | .. | 2,599 | 39 | 710 46 | |

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS

| Anti-Malarial Area | MATERIALS USED | | | | | | | | | | | | | | | | Labour Cost | Material Cost | | | | | | |
|--------------------------------|----------------|----|-----|----|-----|----|-------|----|----|----|-----|----|----------------|----|-----|----|-------------|---------------|----|----|----|----|----|---|
| | INVERTS | | | | | | SLABS | | | | | | SUB-SOIL PIPES | | | | | | | | | | | |
| | 21" | | 18" | | 15" | | 12" | | 9" | | 18" | | 15" | | 12" | | | | 8" | | 6" | | 4" | |
| | N | R | N | R | N | R | N | R | N | R | N | R | N | R | N | R | | | N | R | N | R | N | R |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 132. Bugis Rubber Estate | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 133. Kallang Basin | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 135. Kim Keat Road Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 136. Boon Teck Road Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 137. Jalan Rajah | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 138. Ah Hood Road | 10 | 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 144. Hindoo Cemetery | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 153. St. Michael's Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 154. Thomson Road Ravine No. 4 | 30 | 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 159. Kampong Sambau | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 164. St. Michael's Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 166. Craig Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 170. Braddell Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 171. Bukit Ho Swee | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 172. Sommerville Ravine | 10 | .. | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 191. Raffles Park | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 192. Eng Neo Avenue | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 194. Swiss Club | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 195. Swiss Club Lane | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 201. 5th and 6th Avenue | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 203. Bt. Timah 6th Mile Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 204. Holland Road Ravine | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 210. Queen Astrid Park | 45 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 212. Ooi Tiong Ham Park | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 213. Ford Avenue | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 214. Leedon Park | 55 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 215. Belmont Road | 35 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 220. Mui Keng Terrace | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 222. Kampong Sultan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 223. Buona Vista Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| 225. Pepy's Road | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |

ANNUAL REPORT ON THE CITY ANALYST'S DEPARTMENT FOR THE YEAR 1960

THE BIG VOLUME of work undertaken by the City Analyst's Department in 1959 was maintained during the year 1960 when a total number of 30,831 samples were examined. Compared with the 1959 figures, the decrease in the number of samples was principally from the Water Department (less 1,708 samples) and from Commercial Firms (less 256 samples). The decrease was however balanced by increase in samples from Engineer's Department (+361 samples), Architect and Building Surveyor's Department (+639 samples) and Health Department (+808 samples, comprising 65.9% increase). The high total number of samples done in 1959 would have been exceeded in 1960 if it had not been for staff shortages in the Department.

The samples received for testing can be classified according to their source of origin as follows:—

| | <i>Samples</i> |
|--|----------------|
| Water Department | 19,345 |
| Gas Department | 28 |
| Electricity Department | 2 |
| Engineer's Department— | |
| Sewerage Section | 4,104 |
| Sewerage Section: Extension Works | 215 |
| Stores and Workshop | 2 |
| Engineer's Section | 5 |
| Architect and Building Surveyor's Department | 4,172 |
| Health Department | 2,034 |
| Administrator's Department | 18 |
| Fire Brigade | 2 |
| Commercial Firms | 904 |
| Total | 30,831 |

A general indication of the nature of the samples examined and of the diverse consultative and advisory work carried out for the various departments of the Council is given below.

WATER DEPARTMENT

The following samples were analysed for the Water Department:—

| | <i>Sample</i> |
|--|---------------|
| Routine Daily Water Samples— | |
| From treatment works and distribution system | 11,263 |
| From camp supplies | 1,475 |
| For flourine test | 5,472 |
| Monthly samples of raw water | 24 |
| Monthly samples from clear water tanks | 57 |
| Urine for fluorine test | 338 |
| Boiler Water | 301 |
| Special Investigations— | |
| Filter Performance Test | 17 |
| Flocculation Test | 7 |
| Chlorine Demand Test | 15 |
| <i>Carried forward</i> | 18,969 |

| | | | | <i>Samples</i> |
|------------------------------------|------------------------|----|-------|----------------|
| | <i>Brought forward</i> | .. | | 18,969 |
| Nature of Sediment | .. | .. | .. | 12 |
| Tap water for check test | .. | .. | .. | 12 |
| Sand for Sieving Test | .. | .. | .. | 1 |
| Animal and Plant Life in water | .. | .. | .. | 5 |
| Sludge, Scraping and Encrustations | .. | .. | .. | 8 |
| Corrosion of copper-sheathed wire | .. | .. | .. | 1 |
| Chemicals for Specification Tests— | | | | |
| Hydrated Lime | .. | .. | .. | 21 |
| Sulphate of Alumina | .. | .. | .. | 29 |
| Sodium Bicarbonate | .. | .. | .. | 12 |
| Sodium Silicate | .. | .. | .. | 8 |
| Sodium Silicofluoride | .. | .. | .. | 2 |
| Preparation of chemical reagents | .. | .. | .. | 263 |
| Sterilizing Tablets | .. | .. | .. | 2 |
| | | | Total | 19,345 |

The water supply of Singapore is derived partly from Johore and partly from the island itself. The sources of supply are one river, several impounding reservoirs and the underground supply in Bedok. The water undergoes full chemical treatment at five works, two in Johore and three on the island.

The treatment used at Tebrau Works was that employing 'activated silica' in conjunction with small doses of lime and alum. At the other four works at Gunong Pulai Bukit Timah, Woodleigh and Bedok, the conventional lime-alum treatment was used. The excellent chemical quality of the water was maintained throughout the year. The average figures of the daily tests on raw waters and treated waters, and those of the monthly tests on clear water tank samples are given in Tables *A*, *B* and *C*, respectively.

Several experiments were carried out to treat the raw water taken at the dam at Bedok Valley with other coagulants, such as activated silica in conjunction with lime and alum, alum and sodium aluminate, chlorinated copperas and ferric chloride. These experiments showed that for this water none of the above-named coagulants gave as satisfactory a result as the conventional coagulants, alum and lime.

Experiments to flocculate the water taken at Kota Tinggi bridge were successfully carried out using the alum-lime treatment and also by using activated silica as a coagulant aid. The treated water was found to be of satisfactory quality.

The water produced in the four large works continued to receive fluoridation to the level of approximately 0.7 p.p.m. of fluorine throughout the year. Fluoridation of the Singapore water supply has been carried out for almost 4 years and the effect of this addition, whether beneficial or otherwise, on the dental health of school children, is being studied by the Chief Dental Officer, Ministry of Health.

GAS DEPARTMENT

The following samples were analysed:—

| | | | | | <i>Samples</i> |
|----------------------------------|----|----|-------|----|----------------|
| Tar | .. | .. | .. | .. | 7 |
| Spent Oxide | .. | .. | .. | .. | 7 |
| Iron Oxide | .. | .. | .. | .. | 1 |
| Boiler Water | .. | .. | .. | .. | 1 |
| Preparation of chemical reagents | .. | .. | .. | .. | 12 |
| | | | Total | | 28 |

The big decrease in the number of samples analysed for the Gas Department in 1959 continued with a further decrease in 1960. This is due to the fact that boiler waters are now analysed on the site by a laboratory assistant trained by our Department.

ELECTRICITY DEPARTMENT

The following samples were analysed:—

| | |
|---------------|----------------|
| | <i>Samples</i> |
| Hydrated Lime | 2 |

Sieving tests were done on the hydrated lime for compliance with specifications.

ENGINEER'S DEPARTMENT

Sewerage Section

The following samples were analysed:—

| | |
|--|-------------------|
| | <i>Samples</i> |
| Sewage, sludges, top-waters and effluents from sewage disposal works | 2,036 |
| Sep'ic tanks | 1,756 |
| River and canal water | 312 |
| | <hr/> 4,104 <hr/> |

Routine examination of sewage samples from the two sewage disposal works run by the City Council, one at Alexandra Road and the other at Kim Chuan Road, was carried out regularly throughout the year. At Alexandra Road Works the sewage is treated on percolating filter beds and the effluent discharges into Singapore River. At the Kim Chuan Road Works the activated sludge process is used and the effluent discharges into Serangoon River. The average results of the effluents are given in the following table:—

AVERAGE ANALYSIS OF SEWAGE WORKS EFFLUENTS
(in parts per million)

| | ALEXANDRA ROAD WORKS | | | KIM CHUAN ROAD WORKS | | |
|--------------------|----------------------|-----------------|--------------------|----------------------|----------|--------------------|
| | A, B, E Filters | C, D Filters | Outfall Channel | Phase I | Phase II | Outfall Conduit |
| Amm. Nitrogen .. | 23.0 | 17.7 | 21.8 | 26.3 | 24.6 | 25.5 |
| Alb. Nitrogen .. | 4.3 | 3.5 | 4.3 | 5.1 | 3.5 | 4.1 |
| O.A. in 4 hours .. | 15.7 | 14.4 | 19.5 | 25.6 | 11.6 | 16.1 |
| B.O.D. .. | 28.3 | 27.0 | 38.5 | 57.1 | 16.6 | 30.0 |
| Total Solids .. | 896 | 843 | 529 | 472 | 431 | 475 |
| Suspended Solids | 32.5 | 32.5 | 72.3 | 53.5 | 38.6 | 49.9 |
| Nitrates .. | absent | absent | absent | absent | absent | absent |
| Chlorides .. | 334 | 313 | 303 | 135 | 135 | 136 |
| pH | 7.4 | 7.5 | 7.4 | 7.4 | 7.6 | 7.5 |

The quality of the effluent from the Alexandra Road Works in 1960 remained about similar to the quality found in 1957 to 1959. The new Phase II extension of the Kim Chuan Road Sewage Disposal Works, which was

commissioned last year, was working very well in 1960 as shown in the vast improvement in the quality of the effluent. The quality of the effluent from Phase I was similar to that of last year.

The number of samples from private purification plants, which showed 90% increase in 1959, again increased in 1960 by another 546 samples. The results of the effluents were generally poor, exceeding the suggested limits of 10 p.p.m. for Oxygen Absorbed in 4 Hours and 30 p.p.m. for Suspended Solids. The average results of the effluents from these plants are as follows:—

| | | | | p.p.m. |
|--|----|----|----|--------|
| Free Ammonia | .. | .. | .. | 22.8 |
| Albuminoid Ammonia | .. | .. | .. | 3.7 |
| Oxygen Absorbed from Permanganate in 4 hours | | | | 17.3 |
| Suspended Solids | .. | .. | .. | 60.1 |
| Chlorides (as Cl) | .. | .. | .. | 40 |
| Nitrates (as N) | .. | .. | .. | 2.3 |

Waters from the following canals and rivers were examined:

Singapore River, Geylang River, Kallang River, Serangoon River, Sungei Whampoa, Katong Canal, Siglap Canal, Stamford Canal and Rochore Canal.

The results indicate that these rivers and canals were increasingly being used as sewers for the disposal of filth and rubbish. In a few instances it was found that the water contained mainly faecal matter. The attention of the City Health Officer was drawn to this gross pollution, and a survey was carried out. The sources of pollution were traced to certain kampongs in the proximity of these canals and rivers.

Sewerage Section: Extension Works

The construction of the new disposal works at Ulu Pandan is nearing completion and will be commissioned sometime in 1961. The following samples relating to the construction work were analysed:—

| | | | | Samples |
|----------------------------------|----|----|----------|---------|
| Soil for pH value | .. | .. | .. | 204 |
| Sub-soil Water | .. | .. | .. | 2 |
| Water | .. | .. | .. | 6 |
| Preparation of chemical reagents | .. | .. | .. | 3 |
| | | | Total .. | 215 |

Stores and Workshops

Two samples of soap were analysed for compliance with specifications.

Engineer's Section

Five samples of concrete were received, three of which were for composition and two for water absorption tests.

ARCHITECT AND BUILDING SURVEYOR'S DEPARTMENT

The following samples were analysed:—

| | | | | Samples |
|--------------------------|----|----|----------|---------|
| Swimming Pool Water— | | | | |
| from Mount Emily Pool | .. | .. | .. | 592 |
| from Yan Kit Road Pool | .. | .. | .. | 1,111 |
| from Farrer Park Pool | .. | .. | .. | 1,188 |
| from River Valley Pool | .. | .. | .. | 1,173 |
| Van Kleef Aquarium Water | .. | .. | .. | 108 |
| | | | Total .. | 4,172 |

The swimming pools run by the City Council are four in number. These pools are all filled with fresh water, which are tested daily. The good condition of the water in all the pools was maintained throughout the year.

Samples of salt and fresh water from Van Kleef Aquarium were also received for examination.

HEALTH DEPARTMENT

2,034 samples were received from the Health Department, showing an increase of 808 samples (65.9% increase) over that of 1959. These consisted mainly of samples taken in connection with the licensing of food factories and in the enforcement of the Sale of Food and Drugs Ordinance.

The range and variety of the samples examined are given in the following list:—

| | <i>Samples</i> |
|---|----------------|
| Food (1,833 samples)— | |
| Milk and Milk Products | 406 |
| Beverages | 582 |
| Condiments | 89 |
| Cooking Oils and Fats | 136 |
| Canned Food | 73 |
| Fresh Fruits and Other Foods | 547 |
| Drugs (142 samples)— | |
| B.P. and B.P.C. drugs | 77 |
| Patent Medicines and Native Medicines | 65 |
| Other Samples | 59 |
| Total .. | <u>2,034</u> |

The number of formal samples received under the Sale of Food and Drugs Ordinance was 870, of which 172 were found to be adulterated, below standard or otherwise defective, and appropriate certificates were issued for these samples. The proportion of unsatisfactory samples was 19.8% as compared with 22.2% for 1959. Details of the adulteration and other irregularities found are given in Table D.

Of interest is the continued widespread adulteration of coffee. 291 formal samples of coffee powder and coffee mixture were analysed and approximately 23% of these samples were found to contain less than the required amount of coffee.

Two brands of sesame oil, manufactured in Hong Kong, were found to be adulterated with mineral oil. The mineral oil was confirmed to be light paraffin, which if taken internally will cause purging and will interfere with the absorption of fat-soluble vitamins.

Routine tests were done regularly on samples of food and beverages manufactured locally on premises licensed by the Health Officer. These samples were tested for compliance with standards, metallic contamination, saccharin and prohibited preservatives.

Stricter enforcement of the Labelling Regulations resulted in several requests made to manufacturers to amend their labels so as to comply with the requirements of the Labelling Regulations. The Labelling Regulations are to protect the purchasing public, so that they may not be misled by fanciful and false claims put in the labels as an advertising ‘gimmick’, and also that they may know exactly the true nature of the product which they are buying.

The City Analyst at the request of the City Health Officer, who had received several complaints in mid-1959 from residents around the Gas Works concerning the noxious and offensive smells from the works, carried out

investigation into the sulphur dioxide content of the atmosphere around Kallang Gas Works. He was assisted in this investigation by two Public Health Inspectors. Certain positive conclusions were reached in the investigation. A report has been submitted to the City Health Officer.

The City Analyst served on the Food and Drugs Sub-Committee of the Medical Advisory Council, which met a few times during the year to finalise the amendments to be made to the Food and Drugs Regulations, 1957.

ADMINISTRATOR'S DEPARTMENT

Sixteen lots of photographic developer solution were prepared for the Administrator's Department. Two samples of 'Carlsberg' beer were tested for adulteration.

FIRE BRIGADE

One sample of methylated spirit and one sample of rubber solvent were received for flash-point determinations.

COMMERCIAL FIRMS

A total of 904 samples were received and reported on. The samples may be classified as follows:—

| | <i>Samples</i> |
|--------------------------------------|----------------|
| Essential Oils | 10 |
| Vegetable Oils | 74 |
| Ores | 29 |
| Local Produce | 7 |
| Food | 150 |
| Drugs | 37 |
| Chemicals | 35 |
| Building Materials | 12 |
| Fuels and Petroleum Products | 20 |
| Swimming Pool Waters, etc. | 512 |
| Miscellaneous | 18 |
| Total | 904 |

Swimming pool water and potable water made up 57% of the samples analysed for the public. The swimming pool water were from several social clubs, one seamen's club and three Royal Air Force Stations. Requests for advice on water supply and water treatment were received from Sandakan, North Borneo, and several towns in the Federation of Malaya.

Coal samples were received from Malim Nawar, Perak, for composition and calorific value tests. Two samples of 'Brylcreem' were received from a company in Kuala Lumpur for tests to differentiate between the genuine and the imitation goods.

STAFF

During the year, we lost the services of one clerk, Mr. Yeo Kim San, who resigned in October, one Assistant Analyst, Mr. Loke Fook Seng, who was seconded to the Pasir Panjang Power Station for the whole year and one laboratory assistant, Mr. Wong Yune Say, who was appointed as Overseer, Chemical Treatment, Water Department, in November.

Mr. Lim Chin Kuan, City Analyst, attended the W.H.O. Seminar on Public Health Services held in Manila from 5th to 16th December. He went on 4 months' leave on 25th January, 1961 prior to resigning from the service of the City Council. He has been with the Department for 10 years. We are sorry to lose him and we wish him all the best in his future career.

As Assistant Analyst and the next most senior officer it was my privilege to act in the absence of the City Analyst. I wish to place on record my appreciation of the willing help and loyal support given by the whole staff, without which the volume of work could not have been accomplished.

CHIA HONG HOE, B.SC., M.SC., D.I.C., A.R.I.C.,
Acting City Analyst.

TABLE A

RAW WATER

AVERAGES OF DAILY ANALYSIS FOR YEAR 1960
(Results in Parts Per Million)

| | Tebrau River | Pontian Reservoir | G. Pulau Reservoir | Peirce Reservoir | MacRitchi Reservoir |
|---|-----------------|----------------------|-----------------------|---------------------|------------------------|
| Nitrite Nitrogen | a | a | a | a | a |
| Carbon Dioxide | 5.7 | 3.8 | 5.0 | 2.8 | 2.6 |
| Total Alkalinity (as CaCO ₃) .. | 3.0 | 6.7 | 6.5 | 3.7 | 3.9 |
| pH Value | 5.9 | 6.6 | 6.4 | 6.0 | 6.1 |
| Colour (Hazen Units) .. | 30 | 19 | 9 | 20 | 17 |
| Iron | .35 | .45 | .21 | .33 | .25 |

TABLE B

TREATED WATER

FROM CLEAR WATER TANKS

AVERAGES OF DAILY ANALYSIS FOR YEAR 1960
(Results in Parts Per Million)

| | Tebrau | G. Pulau | Wood- leigh | Bukit Timah |
|---|--------|----------|----------------|----------------|
| Nitrite Nitrogen | a | a | a | a |
| Carbon Dioxide | 0.9 | 1.2 | 1.5 | 1.5 |
| Total Alkalinity (as CaCO ₃) .. | 13.0 | 11.3 | 8.6 | 9.0 |
| pH Value | 7.9 | 7.9 | 7.2 | 7.3 |
| Colour (Hazen Units) .. | 5 | 5 | 5 | 5 |
| Iron | .10 | .10 | .10 | .10 |
| Soluble Alum (as Al) .. | .45 | .56 | .68 | .64 |
| Residual Chlorine | .67 | 1.06 | .27 | .36 |

TABLE C

TREATED WATER
FROM CLEAR WATER TANKS
AVERAGES OF MONTHLY COMPLETE ANALYSIS 1960
(Results in Parts Per Million)

| | | Tebrau | Gunong Pulai | Wood- leigh | Bukit Timah | Bedok |
|---|-------|--------|-----------------|----------------|----------------|-------|
| Ammoniacal Nitrogen | .. | 0.11 | 0.30 | 0.13 | 0.18 | 0.66 |
| Albuminoid Nitrogen | .. | 0.03 | 0.06 | 0.04 | 0.05 | 0.08 |
| Nitrite Nitrogen | .. .. | a | a | a | a | t |
| Nitrate Nitrogen | .. .. | 0.03 | 0.02 | 0.09 | 0.01 | 0.13 |
| Carbon Dioxide | .. .. | 0.46 | 1.00 | 1.70 | 2.00 | 13.70 |
| Total Alkalinity (as CaCO ₃) | .. | 13.9 | 11.7 | 8.4 | 9.0 | 83.0 |
| Total Hardness (as CaCO ₃) | .. | 21.8 | 22.0 | 24.0 | 22.5 | 114.0 |
| Carbonate Hardness | .. | 13.9 | 11.7 | 8.4 | 9.0 | 81.0 |
| Chlorides (as Cl) | .. .. | 6.3 | 7.5 | 6.7 | 7.0 | 25.6 |
| Iron | .. .. | 0.10 | 0.10 | 0.10 | 0.10 | 0.19 |
| Soluble Alum (as Al) | .. | 0.61 | 0.52 | 0.68 | 0.67 | 0.05 |
| Free Chlorine | .. .. | 0.64 | 1.00 | 0.25 | 0.36 | 0.44 |
| Oxygen Absorbed from Per- manganate in 4 hours | .. | 0.36 | 0.61 | 0.45 | 0.44 | 1.09 |
| B.O.D. in 3 days | .. .. | 0.15 | 0.17 | 0.17 | 0.18 | 0.30 |
| Total Solid Residue | .. | 47 | 55 | 51 | 46 | 238 |
| Suspended Solids | .. .. | 1.20 | 0.25 | 0.30 | 0.30 | 0.87 |
| Colour (Hazen Units) | .. | 5 | 5 | 5 | 5 | 5 |
| pH Value | .. .. | 8.3 | 8.0 | 7.2 | 7.3 | 7.3 |
| Turbidity | .. .. | 1.1 | 1.2 | 1.1 | 1.0 | 1.2 |

TABLE D

FOOD AND DRUGS SAMPLES ADULTERATED OR OTHERWISE IRREGULAR

| No. | Sample | Nature of Irregularity |
|-----|--------------------------------------|--|
| 62 | Coffee Mixture | Deficient in coffee. |
| 3 | Coffee Powder | Deficient in coffee. |
| 4 | Milk | Deficient in fat. |
| 17 | Milk | Deficient in solids-not-fat. |
| 1 | Milk | Deficient in fat and solids-not-fat. |
| 2 | Boiled Milk | Deficient in fat. |
| 8 | Boiled Milk | Deficient in solids-not-fat. |
| 11 | Boiled Milk | Deficient in fat and solids-not-fat. |
| 2 | Blackcurrant Syrup | Deficient in Vitamin C. |
| 1 | Almond Syrup | Contained excessive benzoic acid. |
| 2 | Pear Syrup | Contained saccharin. |
| 2 | Loquat Syrup | Contained saccharin. |
| 1 | Syrup | Contained saccharin. |
| 1 | Syrup with Vitamin C | Deficient in Vitamin C. |
| 1 | Rose Hip Syrup | Deficient in Vitamin C. |
| 1 | Guava and Grape Juices | Deficient in Vitamin C. |
| 1 | Orange Crush | Contained saccharin. |
| 1 | Ice-cream Soda | Contained saccharin. |
| 2 | Butter | Contained boric acid. |
| 8 | Noodles | Contained boric acid. |
| 10 | Coriander Powder | Contained added rice powder. |
| 1 | Turmeric Powder | Contained added rice powder. |
| 2 | Chilli Sauce | Contained saccharin. |
| 1 | Chilli Catchup | Contained saccharin. |
| 1 | Orange Sauce | Contained saccharin. |
| 3 | Groundnut Oil | Not genuine groundnut oil. |
| 2 | Sesame Oil | Adulterated with mineral oil. |
| 11 | Canned Cauliflower | Contained sulphur dioxide. |
| 4 | Vitamin B1 Tablets | Deficient in Vitamin B1. |
| 1 | Glycerin Borax, B.P. | Deficient in borax. |
| 1 | Chinese Medicine | Contained excessive arsenic. |
| 1 | Chinese Medicine | Ingredients not according to stated formula. |
| 1 | Headache Cure (Chinese Powder) | Ingredients not according to stated formula. |
| 1 | Headache and Fever Powder | Ingredients not according to stated formula. |
| 1 | Instant Fever Cure | Ingredients not according to stated formula. |

Total number of formal samples received .. 870

Number of unsatisfactory samples 172

Percentage of unsatisfactory samples 19.8

BACTERIOLOGICAL DEPARTMENT

THE FOLLOWING IS the report on the work carried out in this laboratory during the year 1960.

SECTION A—PUBLIC HEALTH SPECIMENS

| <i>Source</i> | | | <i>1959</i> | <i>1960</i> |
|--|----|----|-------------|-------------|
| Medical Officers in charge Staff | .. | .. | 9,478 | 11,044 |
| Medical Officers in charge Outdoor Dispensaries | .. | .. | 133 | 376 |
| Maternity and Infant Welfare Clinics and Creches | .. | .. | 9,296 | 10,136 |
| Middleton Hospital | .. | .. | 17,973 | 23,554 |
| St. Andrew's Mission Hospital | .. | .. | 5 | — |
| Kwong Wai Siu Hospital | .. | .. | — | — |
| Johore and Tebrau Water Works | .. | .. | 305 | 187 |
| Private Medical Practitioners | .. | .. | 2,489 | 1,985 |
| Rats from Plague Prevention Section | .. | .. | 3,841 | 4,022 |
| Ecto-parasites from Plague Prevention Section | .. | .. | 6,442 | 4,538 |
| Total | | | 49,962 | 55,842 |

SECTION B—WATER EXAMINATIONS

| | | | | |
|---|----|----|--------|--------|
| Routine from Water Engineer | .. | .. | 13,770 | 12,881 |
| Routine from Council Swimming Pools | .. | .. | 4,155 | 4,908 |
| Miscellaneous sources | .. | .. | 778 | 414 |
| Algæ and other specimens | .. | .. | 189 | 116 |
| Wash Water from City Cleansing Department | .. | .. | 35 | 35 |
| Grand Total | | | 68,889 | 74,196 |

SECTION A—PUBLIC HEALTH SPECIMENS

MALARIA

450 blood films were examined for malarial parasites.
1 blood film was positive for *P. falciparum*.
4 blood films were positive for *P. vivax*.

TUBERCULOSIS

| | | | <i>Positive</i> | <i>Negative</i> | <i>Total</i> |
|-----------------------|----|----|-----------------|-----------------|--------------|
| Sputum specimens | .. | .. | 40 | 1,518 | 1,558 |
| Fæces specimens | .. | .. | — | 1 | 1 |
| Milk specimens | .. | .. | — | 24 | 24 |
| Pathological exudates | .. | .. | — | 2 | 2 |
| Total | | | 40 | 1,545 | 1,585 |

ENTERIC FEVER

| | | | <i>Positive</i> | <i>Negative</i> | <i>Total</i> |
|--|----|----|-----------------|-----------------|--------------|
| Agglutination with <i>Salmonella typhi</i> | .. | .. | 146 | 765 | 911 |
| Agglutination with <i>Salmonella paratyphi A</i> | .. | .. | 10 | 354 | 364 |
| Agglutination with <i>Salmonella paratyphi B</i> | .. | .. | 22 | 342 | 364 |
| Agglutination with <i>Salmonella paratyphi C</i> | .. | .. | 10 | 354 | 364 |
| <i>Carried forward</i> | | | 188 | 1,815 | 2,003 |

| | | | <i>Positive</i> | <i>Negative</i> | <i>Total</i> |
|--|------------------------|----|-----------------|-----------------|--------------|
| | <i>Brought forward</i> | .. | 188 | 1,815 | 2,003 |
| Blood clot culture— <i>Salmonella typhi</i> isolated | .. | .. | 71 | 490 | 561 |
| Blood clot culture—paratyphi <i>A</i> | .. | .. | 1 | — | 1 |
| Blood clot culture—paratyphi <i>B</i> | .. | .. | 1 | — | 1 |
| Fæces culture— <i>Salmonella typhi</i> isolated | .. | .. | 313 | 2,230 | 2,543 |
| Fæces culture—paratyphi <i>B</i> | .. | .. | 3 | — | 3 |
| Urine culture— <i>Salmonella typhi</i> isolated | .. | .. | 34 | 2,114 | 2,148 |
| | Total | .. | 611 | 6,649 | 7,260 |
| Agglutination with Vi antigen | .. | .. | | | 911 |
| | | | | Grand Total | 8,171 |

TROPICAL TYPHUS

A total of 676 specimens of blood were examined for Weil Felix Reaction and all were negative.

DYSENTERIES

| | | | <i>Positive</i> | <i>Negative</i> | <i>Total</i> |
|-------------------------------------|-------|----|-----------------|-----------------|--------------|
| Amœbic— <i>Entamœbæ histolytica</i> | .. | .. | 21 | 2,606 | 2,627 |
| Bacillary— <i>Shigella flexneri</i> | .. | .. | 112 | 2,251 | 2,404 |
| <i>Shigella shigæ</i> | .. | .. | 1 | | |
| <i>Shigella sonnei</i> | .. | .. | 40 | | |
| | Total | .. | 174 | 4,857 | 5,031 |

PLAGUE

No specimens of human origin were received.

4,022 rats were dissected and none showed any signs of plague infection.

4,538 ecto-parasites combed from the rats were examined.

The species and distribution of all rats and ecto-parasites are given in the attached table.

CEREBO-SPINAL FEVER

No specimens were received.

CHOLERA

No specimens were received.

LEPROSY

A total of thirteen (13) skin smears were examined, of which three (3) were positive.

DIPHTHERIA

A total of 16,335 specimens were cultured for examination and *C. diphtheriæ* was demonstrated in 2,558 specimens.

MISCELLANEOUS EXAMINATIONS

| | | | <i>Positive</i> | <i>Negative</i> | <i>Total</i> |
|---|----|----|-----------------|-----------------|--------------|
| Pathological exudates for General Examination | .. | .. | — | — | 30 |
| Urine for General Examination | .. | .. | — | — | 2,443 |
| Pus and Urine for Gonococci | .. | .. | 31 | 388 | 419 |
| Blood for Hæmoglobin percentage | .. | .. | — | — | 16 |

| | | | | | Positive | Negative | |
|---|----|----|----|----|----------|----------|--------|
| Blood for Total red cell, total white cell and differential count | .. | .. | .. | .. | — | — | 375 |
| Blood for B.S.R. | .. | .. | .. | .. | — | — | 9 |
| Blood for Kahn Reaction | .. | .. | .. | .. | 43 | 3,758 | 3,801 |
| Cerebro-spinal fluid for Kahn Reaction | .. | .. | .. | .. | — | 1 | 1 |
| Fæces for Occult Blood | .. | .. | .. | .. | — | 1 | 1 |
| Fæces for Intestinal parasites | .. | .. | .. | .. | — | — | 10,314 |
| Sun-dried Humus and Sludge | .. | .. | .. | .. | — | — | 32 |
| Ice Cream | .. | .. | .. | .. | — | — | 475 |
| Milk | .. | .. | .. | .. | — | — | 64 |
| Milk and Aerated Water bottles for Sterility test | .. | .. | .. | .. | — | — | 37 |
| Tap Water for presence of worms | .. | .. | .. | .. | — | — | 10 |
| Preserved vegetables | .. | .. | .. | .. | — | — | 6 |
| Cooked food for food-poisoning group | .. | .. | .. | .. | — | — | 110 |
| Cheese | .. | .. | .. | .. | — | — | 18 |
| Ovaltine | .. | .. | .. | .. | — | — | 1 |
| Chilli bean curd (preserved) | .. | .. | .. | .. | — | — | 1 |
| Aerated waters | .. | .. | .. | .. | — | — | 18 |

Organisms morphologically resembling *Clostridium botulinum* were found in mussels, brought in along with other food remnants from a suspected outbreak of botulism in a family in which one child had died and some others had developed respiratory paralysis. Further identification of the organisms was not possible due to the non-availability of *Clostridium botulinum* anti-toxin in Singapore. Botulism does not appear to have been reported from Singapore before this outbreak in September 1960.

SECTION B—WATER

| Source (Pipe supply) | | Year's average total colonies per ml. at 37°C. in 24 hours | Year's average presumptive coliform count per 100 m. |
|---|----|--|--|
| MacRitchie Reservoir Valve Tower | .. | 148 | 31 |
| Peirce Reservoir Valve Tower | .. | 299 | 13 |
| Seletar Reservoir Suction Well | .. | 181 | 61 |
| Pontian Reservoir Valve Tower | .. | 190 | 48 |
| Bukit Timah Reservoir—Clear Water Tank | .. | 13 | Less than 1 |
| Woodleigh Reservoir—Clear Water Tank | .. | 11 | Less than 1 |
| Gunong Pulai Reservoir—Clear Water Tank | .. | 10 | — |
| Tebrau Reservoir—Clear Water Tank | .. | 9 | Less than 1 |
| Bedok Clear Water Tank | .. | 20 | Less than 1 |
| Pontian Camp Supply | .. | 14 | Less than 1 |
| Pearl's Hill Reservoir Tank 1 | .. | 9 | Less than 1 |
| Pearl's Hill Reservoir Tank 2 | .. | 8 | Less than 1 |
| Fort Canning Service Reservoir | .. | 10 | — |
| Taps—Bacteriological Laboratory | .. | 11 | — |
| Lorong Lalat Office | .. | 40 | Less than 1 |
| Havelock Road Office | .. | 11 | — |
| Pasir Panjang Office | .. | 14 | Less than 1 |
| Dunearn Road Office | .. | 8 | Less than 1 |
| Joo Chiat Office | .. | 13 | Less than 1 |
| AVERAGE OF SIX TAPS | .. | 16 | Less than 1 |
| <i>Public Swimming Pools (City Council)</i> | | | |
| Mount Emily—Inlet End | .. | 7 | — |
| Outlet End | .. | 7 | Less than 1 |
| Yan Kit—Shallow Pool | .. | 7 | — |
| Practice Pool | .. | 7 | — |
| Main Pool (Inlet) | .. | 7 | — |
| Main Pool (Outlet) | .. | 7 | — |

| | | | Year's average total colonies Per ml. at 37° C in 24 hours | Year's average Presumptive coliform count per 100 m. |
|--------------|--------------------------------------|----|--|--|
| Farrer Park— | | | | |
| | Farrer Park—Shallow Pool (Inlet) .. | .. | 7 | — |
| | Shallow Pool (Outlet) .. | .. | 9 | — |
| | Main Pool (Inlet) .. | .. | 8 | Less than 1 |
| | Main Pool (Outlet) .. | .. | 9 | Less than 1 |
| | River Valley—Shallow Pool (Inlet) .. | .. | 8 | — |
| | Shallow Pool (Outlet) .. | .. | 8 | — |
| | Main Pool (Inlet) .. | .. | 8 | — |
| | Main Pool (Outlet) .. | .. | 9 | — |

Miscellaneous Samples

| | | | | | |
|--|----------------------------|----|---|-------|---------|
| | | | | | samples |
| | Singapore Swimming Club .. | .. | — | | 208 |
| | Tanglin Club .. | .. | — | | 102 |
| | Chinese Swimming Club .. | .. | — | | 51 |
| | Other sources .. | .. | — | | 53 |
| | | | | Total | 414 |

ALGÆ AND OTHER SAMPLES

| | | | | | |
|--------------------|----|----|----|---|-----|
| <i>Algæ</i> .. | .. | .. | .. | — | 116 |
| Sewage Effluent .. | .. | .. | .. | — | — |

WASH WATER FROM CITY CLEANSING DEPARTMENT

A total of thirty-five samples were examined and the results obtained were satisfactory.

STAFF

Miss E. R. McIntyre was transferred to this laboratory on 13th January, 1960, without warning or posting orders, in the place of the clerk Mr. Lim Thuan Ing. On 29th December, 1960, on the eve of his vacation leave and no-pay leave extending over a period of 76 days which was granted in July 1960, Mr. Lim Thuan Ing was transferred back to this sub-department (without any provision for a relief) and Miss E. R. McIntyre posted to Middleton Hospital.

The above as well as memorandum No. HO. 102/A dated 23rd March, 1960 threatening disciplinary action for alleged overspending—when in the opinion of the City Assistant Treasurer, there was no over-expenditure at all—all seem to indicate a hostile attitude towards this sub-department.

The post of City Bacteriologist remained vacant throughout the year. The Assistant Health Officer (Bacteriology) carried out the duties of the City Bacteriologist in addition to his own, which included roster duties at Middleton Hospital.

On 1st April, 1960, the Government Senior Pathologist took over the supervision of the work in this laboratory.

K. KARUNAKARAN, B.A., M.B.B.S.
Assistant Health Officer (Bacteriology)

ANNUAL REPORT OF CITY MATERNAL INFANT WELFARE DEPARTMENT 1960

DURING 1960, A GREAT deal of work has been accomplished, but a great deal more could have been done if there had been adequate staff to carry it out. The increasing number of births exercised great demands on the resources of the staff, who are not increasing in relation to the size and scope of the work. In fact, there are less Health Visitors now than ever before. The willingness of the Staff to take on more and more is greatly appreciated, but there is a limit to what a gallant band of women can do.

Throughout the year, the number of Doctor's posts filled were only six. One or other Doctor was away in turn throughout the year on vacation leave; there was one Maternity Leave in mid-year—and a good deal of sick leave, mostly from fever and throat infections possibly picked up from their patients. Thus it was only possible to have five Doctors at a time on Duty for most of the year, and therefore two of the Clinics, Kreta Ayer Clinic and Aljunied Road Clinic have had to do without medical cover. It was still not possible to open the Stirling Road—Queenstown Clinic which had been ready since June 1959. By October, with the acquisition of an extra Lady Medical Officer in the Rural Maternity Child Health Service, it was possible to arrange that Aljunied Road would at least have a Doctor on a part time basis, her duties being shared with Kim Chuan Clinic. Attempts to fill two vacant posts drew a blank.

On 30th December, 1960 Dr. Chan resumed duty after about 1½ years absence on No Pay Leave in the United Kingdom where she was successful in obtaining her Diploma of Child Health. The Department has now three Lady Assistant Health Officers with the Diploma of Public Health, and one with the Diploma in Child Health.

NURSING STAFF

None of the vacancies for Nurses were filled during the year. Six Posts of Sisters were still frozen pending ultimate merger between City and Rural when the discrepancies in terms and conditions, and pay scales now existing will be settled. In the meanwhile seven Health Visitors (Staff Nurses) had to act throughout the year as Sisters, as it was essential that these duties be carried out. In addition there were thirteen vacancies for Health Visitors, making a total shortage of twenty Nurses.

Attempts to fill vacancies some of which have existed since 1958 were made twice but drew no response from suitably qualified personnel. The nature of their work requires the Health Visitors to be qualified as general trained Nurses with Class 'A' Certificate in Midwifery.

Two Health Visitors who had undergone the Public Health Nursing training course the previous year, returned to duty after obtaining their Health Visitor Certificates and District Nursing. Four Health Visitors were sent to the new course which started in June. An arrangement was made to provide two substitutes from the Rural Services to help relieve the shortage occasioned by the number proceeding on this study leave, but owing to their own shortage, only one Rural Staff Nurse could be lent. As she was advancing in pregnancy, her use for outdoor work in Health Visiting was limited.

At a Nursing Seminar held from 25th June to 1st July one of the newly qualified Health Visitors from the Public Health Nursing Course, Goh Sock Eng, was one of the main speakers.

Training in Infectious Disease Nursing at Middleton Hospital continued during the year. Originally two nurses at a time were seconded for training, but due to the shortage of Nurses only one was sent at a time.

An examination was held in March for Health Visitors to allow them to cross the Health Visitors Bar in the Health Visitors Scale. They had attended in the past year a course of in-service training, consisting of a weekly course of lectures on Public Health subjects especially related to Maternal Child Health work, and had to sit for a 3 hour written paper, and undergo an oral Exam.

At the opening of the Family Planning Exhibition on November 26th—City Health Visitors formed a guard of honour together with Staff Nurses and Midwives from Rural Maternal Child Health Services and Kandang Kerbau Hospital, which was graciously inspected by Che Puan Noor Aisha. One of the City Health Visitors had the honour of presenting a bouquet to Che Puan, while her Rural counterpart presented the pair of scissors for the ribbon cutting ceremony. City Health Visitors were on duty at the Maternal Child Health section at this Exhibition and gallantly tried to answer all the barrage of questions with which the interested visitors bombarded them.

The hazards of Health Visiting faced by our Staff was seen in the number of accidents that they met with during the course of their duties in sun and rain and storm. Notable among them were cases of monkey bite which happened to one Health Sister within a few weeks after she was bitten by a savage dog in homes she had to visit.

MIDWIVES

For the first 8 months of the year there were only fifteen midwives on our establishment. In August, three new Midwives were appointed, but within a month, two gave notice of resignation as the pressure of work was too much for them. The number of D.A.C. referred from Kandang Kerbau Hospital have been as great as in previous years. We received a number of complaints that the Midwives did not come to bathe their cases till late in the evening, but on investigation it was seen that their long list of cases was usually over twenty in number and at times amounted to thirty, so it was inevitable that they could not put in all their visits in the morning as is liked by patients. Exhausted as they were by that hour they had to be on call for confinement calls if needed at night, as there were too few Midwives for shift duty. The young newly recruited Midwives could not cope with this hard work, particularly as they had been accustomed to living in institutions such as Kandang Kerbau Hospital hostel and the Rural Clinics where there is a resident amah to cook their meals, and housekeep for them, whereas in the City Quarters they have to fend for themselves.

Following the resignation of these two Midwives, two others were eventually appointed to take their places by the end of the year.

In addition, permission was obtained to second two Midwives from Rural Services to assist and relieve the pressure in two of the City areas, and in November, this was implemented. In June, much needed Refresher Courses were started by the W.H.O. Senior Nurse Educator at Kandang Kerbau Hospital for Midwives in both Rural and City Services together with Midwives in Private Practice. The duration of each of these courses was two months, and three such Courses were held during the year, at each of which, one of

the City Midwives attended. While they were found sadly wanting in their theory of Midwifery, due to short-comings of training in the past, the W.H.O. Senior Sister Educator found them on the whole keen to learn and good at their practical work. The importance of the Health Education aspect of Midwifery was brought home to them and they were given classes in preparation of Health Education material.

Midwives Ante Natal sessions which had been commenced in three Clinics at the end of last year was extended to Kim Keat in September.

CLINIC ATTENDANTS

The vacancies for Clinic Amahs occasioned by death and retirement were not filled till November. Three members from Works Brigade, all Malays, were appointed but less than one month afterwards two sent in their resignations as they found the work was not congenial enough.

VACCINATOR

The vacant post of Vaccinator was not filled. No relief was available during vacation or sick leaves.

With the use of the All Purpose Book in the Clinics it was possible to note at once which child had not been vaccinated, and remainders by Home Visits were needed. It was not possible to do as much Home Visiting as was needed to follow up cases who were overdue for vaccination, due to insufficient staff and increasing number of babies.

EXTENSION OF SERVICES

In spite of the staffing difficulties, some expansion of the Services was made.

B.C.G.

Previously B.C.G. for the newborn has been given by Clinic Staff at four of the City Clinics. As from August this was extended to two other City Clinics, by extending the Service to Kim Keat and Alexandra Clinics.

Midwives Ante Natal Sessions

Ante Natal sessions run by the Midwives only was attended to another clinic making a total of four out of seven clinics. In order to relieve the congestion at the usual Doctor Sessions, all new patients were asked to attend at these Midwife Sessions first, in order to get all the preliminary routine examinations completed. At these sessions, all new cases had their preliminary routine investigations completed such as history taking, heights and weights, urine, blood tests, blood pressure, etc. This enabled more speedy handling of the cases for the Doctor's Ante Natal Sessions at which the cases would attend the following week, and also relieved the congestion there. At the same time there was more time for Health Education Talks and Group discussions for the Ante Natal mothers. At first, these sessions were not very well patronised when the patients realised there was no Doctor present, but they are now learning to understand the reason for the separate sessions, and probably appreciate the fact that they do not have to wait so long as before and will be able to get better individual attention when there is not such a crush of patients. It is hoped that in due course, all the Clinics will be able to have these Midwife Sessions when there are more Midwives in the Service to run them.

Family Planning

As long ago as 1949, Family Planning was originally one of the Services offered by the City Clinics. Due to the expansion of the Service and shortage of staff this aspect was left more and more for the Family Planning Association to handle. Now that it is a definite Government policy to foster Family Planning it is again being offered by the Clinic Staff. The simpler methods are being advocated, with the advice to follow up with more sophisticated methods later, to be obtained from F.P.A. sessions. More F.P.A. sessions are now being held in the City Clinics such as Kim Keat.

Family Planning Campaign

Senior Assistant Health Officer, Maternal Infant Welfare Department was appointed Chairman of the Family Planning Campaign Committee. An intensive Campaign was launched in November commencing with courses of lectures in Chinese and English to 'Lay Workers' whose services it is hoped, can be utilised to further this campaign. The Press and Radio were extremely co-operative in giving every publicity to this cause. The Exhibition held at the Victoria Memorial Hall was opened by Che Puan Noor Aisha on November 26th and scheduled to close by December 4th. However, owing to the great interest it aroused, it was extended till December 6th. An average of 10,000 persons visited this Exhibition daily and this number increased to 12,000 at the weekends. The crowds appeared to be extremely interested by all the exhibits, which they studied with great care and attention. The Staff on duty had to answer very searching questions on the subject. The public reaction on the whole appeared to be favourable towards the idea that Families should be planned, and they welcomed the opportunity to learn how this should be done.

POLIO SABIN SURVEY

As from April till June, City Staff assisted in a controlled survey made to obtain blood and stool specimens from young children living in the areas attached to the Institute of Health and Alexandra Clinics, who had received oral Polio vaccine in 1958. Much effort was spent by Health Visiting and in Clinics persuading parents to participate in this Survey. The response was not very brisk at first as parents were reluctant to allow blood to be drawn from their children, but the presence of an experienced Doctor skilled in drawing blood from struggling children was a great advantage in allaying their fears.

TYPHOID ON PULAU BUKOM BESAR

At the first news of this outbreak six City Health Visitors were seconded to Middleton Hospital to help with the nursing of these cases. They were on duty there from 9th September, 1960 to 3rd October, 1960. In addition, one City Sister was seconded to join the Rural Nurses and the Island Maternal Child Health team to give mass inoculations to the Southern Islanders commencing with Pulau Bukom. A total of 21,891 injections were given during the two months of September and October.

DOMICILIARY MIDWIFERY SERVICES

As the popularity of confinement in Hospital increases so is there a progressive decrease in the demand for confinement at home. Private Midwives found their practice dwindling even more and this was reflected also in the drops of about 150 cases delivered by City Midwives. However as there were

only 15 Midwives on the establishment for 10 months of the year (with maternity leave for one of them together with normal vacation leaves to deplete the service) the 1,137 cases delivered by City Midwives were more than they could cope with, particularly when the number of Domiciliary After-care cases referred from Kandang Kerbau Hospital were as heavy as in previous years. The bulk of the City Midwives' work was in giving After-Care attention to cases delivered in Kandang Kerbau Hospital and discharged very early.

Table A
TO SHOW NATURE OF CONFINEMENTS
—CITY AREA IN PAST 5 YEARS

| | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|---------------------|--------|--------|--------|--------|--------|--------|
| Hospital .. | 22,238 | 25,112 | 29,299 | 30,075 | 34,028 | 36,310 |
| Private Midwives .. | 15,879 | 14,876 | 13,261 | 11,899 | 10,153 | 8,307 |
| City Midwives .. | 1,210 | 1,371 | 1,305 | 1,411 | 1,295 | 1,137 |

Table B
TO SHOW DOMICILIARY AFTER CARE CASES REFERRED FROM
KANDANG KERBAU HOSPITAL TO CITY MIDWIVES

| | | | | |
|------|----|----|----|--------|
| 1955 | .. | .. | .. | 2,843 |
| 1956 | .. | .. | .. | 6,009 |
| 1957 | .. | .. | .. | 12,597 |
| 1958 | .. | .. | .. | 14,106 |
| 1959 | .. | .. | .. | 15,207 |
| 1960 | .. | .. | .. | 15,172 |

Standardisation of forms, equipment and procedure was achieved with Midwives in Rural services and in Private practice after discussions at meetings convened by S.A.H.O. (M. and I.W.D.) in her capacity as Lady Medical Officer i/c Maternal Child Health Services. The Sister i/c Midwives (Rural) and Supervisor of Midwives (City) were able to get together with the W.H.O. Senior Nurse Midwife Educator, whose valuable advice was much appreciated.

DISTRICT VISITING

Home Visiting had to be sacrificed again on account of the shortages of staff. Although the importance of Home Visiting was by no means overlooked, there was nothing else we could do but cut down on the Home Visiting when staff were needed to cope with the crowds in the clinics.

Table C
HOME VISITING

| | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|--|--------|--------|--------|--------|--------|--------|
| Total visits by Sisters in Puerperium .. | 20,008 | 19,157 | 18,762 | 16,971 | 14,832 | 12,470 |
| Visits to Infants in first year .. | 93,067 | 91,758 | 92,030 | 76,301 | 57,344 | 56,213 |
| Ante Natal visits .. | 6,706 | 9,346 | 8,724 | 7,128 | 5,326 | 4,439 |
| Visits to A.P.T. defaulters .. | 2,766 | 5,561 | 5,696 | 6,654 | 3,980 | 7,202 |

Where precisely it was routine to pay at least four visits to infants in the first year of life, this had to be curtailed to two or even in some cases to one. There was an increase in the 1st visit in the neonatal period, however, and the total number of visits was not far short of 1959 visits.

If the staffing does not improve it may be necessary to follow the example of the Rural Services to send Remainder Chits through the post to advise parents to bring their children for the immunisation programme, but this is a pity as it is very necessary for the Health Visitors to see the mother in her natural surrounding to be able to give her advice personal to her problems.

CLINIC ACTIVITIES

There was an even bigger attendances in the clinics than in previous years for all types of Services, whether for infants, preschool children, sick mothers or Ante Natal mothers. It is heartening to see the confidence of mothers in our Services, but although the percentage of sick requiring treatment is lower this year, there is still a tendency to regard the Maternal Child Health Clinics as Outpatient Clinics specially for Mothers and Children.

Table D
CLINIC ATTENDANCES

| | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|---------------------------------|---------|---------|---------|---------|---------|--------------------------|
| Total Infant attendances .. | 141,748 | 180,873 | 213,760 | 217,569 | 231,993 | 250,550 |
| Percentage sick | 63.84% | 63.75% | 63.01% | 69.48% | 66.65% | 63.77% |
| Total Preschool attendances .. | 5,257 | 30,298 | 82,404 | 64,353 | 77,427 | 97,939 |
| Percentage sick | .. | 49.62% | 22.67% | 67.34% | 74.76% | 62.98% |
| Sick Mothers | 16,994 | 24,296 | 32,348 | 41,117 | 45,687 | 56,491 |
| Total Ante natal attendances .. | 13,964 | 18,281 | 19,356 | 25,343 | 25,553 | 26,041 |
| Midwives' Ante Natal session .. | .. | .. | .. | .. | .. | 1,619 (from Sept.) |

Treatment is only incidental and is given for minor ailments only, the Clinics performing this function for the convenience of patients who would otherwise have to be referred elsewhere—but treatment is always accompanied by advice on how to prevent recurrences and for future care and follow-up.

In order to help in relieving the pressure in Kandang Kerbau Hospital, the Clinics have been attending to cases referred for courses of injections either Antenatally or Postnatally.

THE IMMUNISATION PROGRAMME

- (a) B.C.G.—This work is slowly increasing as parents are more aware of the dangers of T.B. than those of Diphtheria. Unfortunately in the last few months of the year, a good number of adenitis and even abscesses were seen after B.C.G. This has been brought to the attention of A.D.M.S. (Hospital) and severe cases were referred to the Pædiatric Unit for treatment.

- (b) There was a drop in primary vaccination. The post of Relief Vaccinator was not filled so that when one or other Vaccinator was on Vacation Leave, make-shift arrangements had to be made to cover the duties which were not satisfactory. Home Visits by Vaccinator to remind parents when vaccination was overdue, could not be sufficiently made. There are still a good number of children who have escaped vaccination whose parents require to be repeatedly visited and reminded.
- (c) Anti Diphtheria Immunisation. During the year there was a switch over to using Triple Antigen for all Primary Immunisation of infants instead of using Plain A.P.T., or A.P.T. plus Whooping Cough. With more children being followed up in the Clinics through their Pre-School years there was an increased number of Booster doses given.

DENTAL CLINIC

It was not possible to obtain the extension of Dental Services to other Clinics than Prinsep Street Clinic. Provisions which had been made in the year's Estimates for three such Dental extensions were deleted.

The Dental Officer at Prinsep Street Clinic has as much as one officer can deal with, as cases from Kim Keat and Aljunied and even other clinics are being referred to him there. There is a great need for an extension of this service for Ante natal mothers, and pre-school children.

LIAISON WITH OTHER DEPARTMENTS

- (a) The staffing of the four Creches which were planned and opened originally by the Maternal Infant Welfare Department in 1958 continued to be supervised by Staff Nurses from the Maternal Infant Welfare Department although taken under the control of the Social Welfare Department in November 1959. Senior Sister Betty Tan continued to attend to the indents for requirements.
- (b) The Public Health Nurse Training Course. Two Doctors and Senior Sister Tan from Maternal Infant Welfare Department were invited to be lecturers at this Course which commenced in June. S.A.H.O. gave two lectures on the History of the Maternal Child Health Services and the Organization and Administration of the Singapore Services, followed later by two lectures and scientific film on Family Planning.

Dr. N. Tan gave nine lectures on development and management of the infant, and one on the Social and Cultural Factors affecting the Health of the People. Senior Sister Tan lectured on Clinic Management. She had also acted as one of the examiners in the previous course.

The students at this course attended at Institute of Health and other City Clinics for observation and experience of the practical aspects of the work:

- (c) Midwives Board. S.A.H.O. continued to serve on the Board, and Dr. Nalla Tan was appointed to serve on the Exams Committee. Both S.A.H.O. and Dr. Nalla Tan served as examiners during the year.
- (d) Students from the Department of Social Studies, University of Malaya visited the Institute of Health on 21st June, 1960 and were shown all aspects of the work.

- (e) Medical Students doing their Public Health Course were given an opportunity to observe the work of City Health Sisters to whom they were attached, for one day on 24th June, 1960. Pædiatric students continued to attend on Saturday at the Institute of Health to obtain experience in dealing with the normal, well child. On 30th December, Dr. Danaraj brought the D.P.H. students to Prinsep Street Clinic to observe the working of a typical Maternal Child Health Clinic. They were then conducted to Horne Road Creche.
- (f) The School Cardiac Clinic was held for a few sessions in the Institute of Health lecture room on Tuesdays but the noise from the babies in the Clinic obscured cardiac auscultation, hence it was moved to a quieter section on the top floor of the adjoining wing.
- (g) Eight Pædiatric Nurse trainees attended at the Institute of Health and Kreta Ayer Clinic to observe the work on 14th May, 1960.

VISITORS

Many distinguished visitors honoured the Department by calling on S.A.H.O. to inspect our clinics and observe the work there.

In February, the Minister of Health accompanied by top officials of his Ministry toured the City Clinics on 2nd February, 3rd February, 5th February. This was followed by a meeting in the Conference Room of the Ministry on 5th February to discuss amalgamation between City and Rural Services.

On 18th February, two W.H.O. officials, Drs. Frolich and Huggins visited Prinsep Street Clinic and Institute of Health. This was followed later by discussions with A.D.M.S. (Health) on the needs for a full immunisation programme in this country.

On 13th April, a party of Assemblymen visited Institute of Health.

In May, a party consisted of a Vietnamese Doctor and three Midwives visited City and Rural Clinics to observe the Midwifery Services, in all its aspects including the delivery and aftercare.

In August, delegates to the Public Health Conference visited the Institute of Health.

On 7th September, Dr. Karunaratne, Director of Health Services in Ceylon, called on S.A.H.O. at the Institute of Health. He was later taken by Supervisor of Midwives to accompany the D.A.C. Midwife on her rounds to see the Domiciliary After Care Service.

On 25th October, Professor I. G. W. Hill of the St. Andrew's University called on S.A.H.O. at the Institute of Health for discussions on the Maternal Child Health Services.

On 17th November, Professor Martha Elliot, Adviser on Maternal and Child Health matters to W.H.O. and formerly Professor of Pædiatrics at Harvard University, called at the Institute of Health together with Dr. Alexander, Regional Adviser on Maternal Child Health to W.H.O., and Miss Orbell, W.H.O. observer in Nursing.

On 9th December, Dr. Wright, Chief Health Officer, Papua called at the Institute of Health to discuss the development of Maternal Child Health work with S.A.H.O.

On 17th December, Dr. Hwang, delegate of Taiwan, visited the Institute of Health and was later conducted on a visit to Prinsep Street Clinic.

Dr. Moody of Ghana Medical Services also visited Prinsep Street Clinic.

MERGER

Phase I of the long awaited Merger between Rural and City Maternal Child Health Services took effect as from 1st April, 1960. The Acting Lady Medical Officer-in-Charge was then able to be in control again of the City Clinics, and combined the work of the Senior Assistant Health Officer (Maternal Infant Welfare Department) which post she formerly held, together with that of Lady Medical Officer-in-Charge Rural Services.

The day to day work continued more or less as before, but with integration it was possible to try gradually to standardise the work to achieve some uniformity, as well as to pool the resources of staff to assist shortages where needed. Thus in October with the appointment of Dr. A. Wong to Rural Services, her duties were arranged so that Aljunied Road (City) which had had no Doctor for over one year, was able at least to have a Doctor again for three days of the week, sharing her with Kim Chuan Clinic (Rural) while Kim Chuan which had to share one clerk with Lim Ah Pin, Yio Chu Kang and Ponggol was lent the services of a recorder from Aljunied Road Clinic. Two Rural Midwives were seconded to assist City D.A.C. Services as from December 1960.

In December, further step in integration was made by putting the three very ancient cars hired by the Maternal Child Health Services, City from the Transport Centre under the control of Lady Medical Officer plus for a good measure a landrover as a spare vehicle in case of breakdown. These cars were parked at the Institute of Health at night.

Combined Staff meetings of personnel from both Rural and City Services were commenced as from July.

The administrative offices of the Maternal Child Health Services moved from Maxwell Road to the Institute of Health on 1st June. Accommodation was made available for Public Health Matron and her staff. With the return to her former office in the Institute of Health, S.A.H.O. in her dual role of S.A.H.O. (City) and L.M.O. (Rural) was thus able to have her Senior Nursing personnel for both Rural and City in the same office for ready consultation, as Senior Sister Tan's office is in the same place.

This is the last report to be put up for the City Maternal Infant Welfare Department, as future reports will be incorporated in the Report on Island wide Maternal Child Health Services. The City Services has seen a good deal of changes and development from the days in 1910 when it first began with the Singapore Municipality appointing one English Nurse to do some Home Visiting to advise mothers on hygiene and mothercraft.

Now that integration of the two sections of the Maternal Child Health Services is an established fact, it is possible to bring a unified service to the People. The next year or so will probably see a good deal of changes and re-organisation. The co-operation of the Staff will be needed more than ever as without it, achievement of a good service cannot be implemented. Their spirit of service in the face of pressure of work and difficult working conditions has to be understood to be appreciated. Co-operation and understanding from the public is also required in order that their work can succeed in achieving the desired effect, and publicity regarding the aims and intentions of the Maternal Child Health Services is very essential to bring about this co-operation. It is a matter of teamwork, not only among all levels of members of Staff, but also between Staff and Public.

Dr. MAGGIE LIM,
*Lady Medical Officer-in-Charge,
Maternal and Child Health Services.*

ANNUAL REPORT OF MATERNAL AND CHILD WELFARE
DEPARTMENT 1960

| | | 1959 | 1960 |
|---|----|-------------------|-------------------|
| I. <i>Total number of confinements in City Area</i> | .. | 48,851 | 49,288 |
| Nature of confinements: | | | |
| In Hospital | .. | 34,028 | 36,310 |
| By Private Doctors | .. | 2,986 | 3,264 |
| By Private Midwives | .. | 10,153 | 8,307 |
| By City Council Midwives | .. | 1,295 | 1,137 |
| With no skilled attention | .. | 389 | 270 |
| Of these confinements: | | | |
| Number of mothers visited by District Sisters within 10 days after confinement | .. | 13,876 | 12,112 |
| Subsequent visits to sick mothers | .. | 5,843 | 6,905 |
| Sick mothers treated in their homes by Lady Assistant Health Officers | .. | 6,041 | 5,791 |
| Maternal deaths in puerperium | .. | 8 | 8 |
| Mothers removed and untraced | .. | 956 | 358 |
| <i>Total number of Births in City Area</i> | | | |
| Number of twins | .. | 398 | 416 |
| Number of triplets | .. | 5 | 5 |
| Number of quadruplets | .. | — | — |
| Still Births | .. | 766 | 748 |
| Babies died | .. | 286 | 517 |
| Number of newborn babies seen by District Sisters | .. | 13,692 | 11,958 |
| Babies born in Hospital | .. | 33,555 | 35,617 |
| Babies untraced | .. | 960 | 874 |
| II. <i>Free Midwifery Services from the Clinics</i> | | | |
| Free confinements conducted by the City Council Midwives | .. | 1,295 | 1,137 |
| Number of cases referred from Kandang Kerbau Hospital for post-natal domiciliary aftercare by City Council Midwives | .. | 15,207 | 15,172 |
| Abnormal cases referred to Kandang Kerbau Hospital | .. | 35 | 32 |
| Number of self attended deliveries followed up by City Council Midwives | .. | 82 | 84 |
| Total visits paid by City Council Midwives to patients' homes | .. | 47,113 | 49,006 |
| III. <i>Visits paid by Health Visitors to homes</i> | .. | 57,344 | 56,213 |
| 1st visits following Birth Report | .. | 28,437 | 29,080 |
| Subsequent visits | .. | 28,907 | 27,133 |
| Percentage of total births visited by Health Visitors | .. | 57.64% | 59.00% |
| Total number of visits of Sisters and Health Visitors to homes | .. | 87,325 | 87,229 |
| IV. <i>Clinic Activities</i> | | | |
| A. INFANTS | | | |
| New infants 1st attendances at Clinics | .. | 38,414 | 40,606 |
| Subsequent attendances of infants at Clinics | .. | 193,579 | 209,944 |
| Total attendances | .. | 231,993 | 250,550 |
| Of these, attendances of Sick Babies were i.e. in percentage | .. | 154,628 66.65% | 159,788 63.77% |

| | | | 1959 | 1960 |
|--|----|----|------------------|------------------|
| <i>B. PRE-SCHOOL CHILDREN:—</i> | | | | |
| 1st visits | .. | .. | 22,463 | 28,743 |
| Subsequent visits | .. | .. | 54,964 | 69,196 |
| Total visits | .. | .. | 77,427 | 97,939 |
| Of these, attendances of Sick Pre-School Children were | | | | |
| i.e. in percentage | .. | .. | 57,882 74.76% | 61,684 62.98% |
| <i>C. SICK MOTHERS</i> | | | | |
| Number of sick mothers treated:— | | | | |
| In Clinics | .. | .. | 39,646 | 50,700 |
| On District | .. | .. | 6,041 | 5,791 |
| Total | .. | .. | 45,687 | 56,491 |
| <i>D. ANTE NATAL CONSULTATIONS IN CLINICS</i> | | | | |
| Ante natal mothers first attendances | .. | .. | 7,116 | 6,887 |
| Subsequent attendances | .. | .. | 18,437 | 19,154 |
| Total | .. | .. | 25,553 | 26,041 |
| MIDWIVES ANTE NATAL SESSIONS (SINCE SEPTEMBER) | | | | |
| 1st attendances | .. | .. | — | 269 |
| Subsequent attendances | .. | .. | — | 1,350 |
| Total | .. | .. | — | 1,619 |
| Ante natal home visiting by Health Visitors | .. | .. | 5,326 | 4,439 |
| Kahn blood tests taken | .. | .. | 2,505 | 3,316 |
| Number positive | .. | .. | 59 | 25 |
| i.e. in percentage | .. | .. | 2.35% | 0.75% |
| <i>E. VACCINATION OF INFANTS AGAINST SMALL-POX</i> | | | | |
| Clinics | .. | .. | 24,993 | 23,983 |
| District | .. | .. | 4,097 | 4,221 |
| Total | .. | .. | 29,090 | 28,204 |
| <i>F. IMMUNISATION AGAINST DIPHTHERIA</i> | | | | |
| <i>(a) Under 1 year old</i> | | | | |
| 1st injections | .. | .. | 8,669 | 850 |
| 2nd injections (Number who completed course) | .. | .. | 7,310 | 1,481 |
| Total injections | .. | .. | 15,979 | 2,331 |
| <i>(b) Over 1 year</i> | | | | |
| 1st injections | .. | .. | 7,336 | 4,963 |
| 2nd injections (Number who completed course) | .. | .. | 6,685 | 4,773 |
| Total injections | .. | .. | 14,021 | 9,736 |
| <i>(c) T.A.F. injections (over 10 years)</i> | | | | |
| 1st injections | .. | .. | 460 | 759 |
| 2nd injections | .. | .. | 314 | 649 |
| 3rd injections | .. | .. | 242 | 538 |
| Total | .. | .. | 1,016 | 1,946 |

| | | | 1959 | 1960 |
|---|----|-----------------------------|-----------------------|--------|
| (d) <i>Contact Cases</i> | | | | |
| 1st injections | .. | .. | 672 | — |
| 2nd injections | .. | .. | 428 | — |
| | | Total | 1,100 | 1,245 |
| (e) <i>Booster Doses</i> | | | | |
| | .. | .. | 2,412 | 6,366 |
| G. IMMUNISATION AGAINST DIPHTHERIA AND WHOOPING COUGH | | | | |
| | | | <i>Tetanus Toxoid</i> | |
| 1st injections | .. | .. | 1,289 | 3,613 |
| 2nd injections | .. | .. | 1,249 | 2,791 |
| 3rd injections (Number who completed course) | .. | .. | 1,182 | — |
| | | Total injections | 3,720 | 6,404 |
| Febrile reactions | .. | .. | 1,008 | — |
| H. TRIPLE ANTIGEN | | | | |
| 1st injections | .. | .. | 5,054 | 20,163 |
| 2nd injections | .. | .. | 3,905 | 16,757 |
| 3rd injections (Total completed course) | .. | .. | 3,070 | 13,919 |
| | | Total injections | 12,029 | 50,839 |
| Visits to homes to follow up cases | .. | .. | 3,980 | 7,202 |
| Febrile reaction | .. | .. | 4,499 | 8,979 |
| I. B.C.G. VACCINATION | | | | |
| Number of babies under 1 month vaccinated | | | 5,936 | 6,192 |
| Number of babies returned for Mantoux test | | | 3,917 | 118 |
| J. FREE MILK POWDER | | | | |
| Total number of babies given free milk | .. | .. | 11,127 | 13,686 |
| Number of nursing mothers given free milk | .. | .. | 490 | 555 |
| Number of re-issues | .. | .. | 59,656 | 64,382 |
| Total number of lb. of Powdered Milk used | .. | .. | 48,252 | 53,178 |
| V. <i>Supervision of Midwives in Private Practice by Supervisor of Midwives</i> | | | | |
| (a) Number of inspections of Private Midwives bags | .. | .. | 1,170 | 1,014 |
| (b) District visits to check on work of Private Midwives | .. | .. | 1,842 | 1,398 |
| (c) Investigation of Puerperal Fever cases reported | .. | .. | 116 | 80 |
| (d) Investigation of Tetanus Neonatorum cases reported | .. | .. | 4 | 2 |
| (e) Investigation of G. C. Eyes | .. | .. | — | 10 |
| VI. <i>Medical examination of City Council Female Staff</i> | | | | |
| (a) For fitness to join service, confirmation in service and to join Provident Fund | .. | .. | 126 | 45 |
| (b) For treatment of ailments | .. | .. | 513 | 469 |
| | | | 639 } 514 | |
| VII. <i>Dental Clinic</i> | | | | |
| Ante natal mothers | .. | .. | 564 | 634 |
| Post natal mothers | .. | .. | — | 12 |
| Pre-School children | .. | .. | 87 | 33 |
| Emergency cases | .. | .. | — | 19 |
| Revisits | .. | .. | — | 3,715 |
| | | Total number of attendances | 3,668 | 4,413 |

MIDDLETON HOSPITAL

I HAVE THE HONOUR to submit the Annual Report of the Middleton Hospital for the year 1960.

Table I below shows the number of admissions, discharges, transfers and deaths during the year.

Table I

| Diseases | Remain- ing 31-12-59 | Admit- ted | Dis- charged | Trans- ferred | Died | Remain- ing 31-12-60 |
|---|----------------------------|---------------|-----------------|------------------|------|----------------------------|
| Amœbic Dysentery .. | 8 | 249 | 250 | 1 | 1 | 5 |
| Amœbic Dysentery and Bac. Dysentery .. | .. | 3 | 2 | .. | 1 | .. |
| Ankylostomiasis .. | .. | 3 | 3 | .. | .. | .. |
| Ascariasis .. | 2 | 10 | 10 | .. | 1 | 1 |
| Bacillary Dysentery .. | 6 | 70 | 75 | .. | 1 | .. |
| Broncho Pneumonia .. | .. | 10 | 9 | .. | 1 | .. |
| Chickenpox .. | 33 | 1,453 | 1,459 | .. | .. | 27 |
| Chickenpox with Encephalitis .. | .. | 2 | .. | .. | 2 | .. |
| Clinical Dysentery .. | 5 | 161 | 160 | 1 | 3 | 2 |
| Diphtheria .. | 40 | 642 | 608 | .. | 32 | 42 |
| Diphtheria carrier .. | 17 | 601 | 610 | .. | .. | 8 |
| Erysipelas .. | .. | 3 | 3 | .. | .. | .. |
| Encephalitis .. | .. | 9 | 8 | .. | 1 | .. |
| Gastro Enteritis .. | 1 | 12 | 9 | 1 | 3 | .. |
| Herpes Zoster .. | .. | 5 | 5 | .. | .. | .. |
| Influenza .. | 1 | 73 | 73 | .. | .. | 1 |
| Inguinal Hernia .. | .. | 1 | .. | 1 | .. | .. |
| Intestinal Colic .. | .. | 1 | .. | 1 | .. | .. |
| Japanese B. Encephalitis .. | .. | 1 | .. | .. | .. | 1 |
| Measles .. | 6 | 178 | 178 | 5 | .. | 1 |
| Measles with Broncho-pneu- monia .. | .. | 64 | 61 | .. | 3 | .. |
| Measles with Encephalitis .. | .. | 1 | .. | .. | 1 | .. |
| Measles with gastro-enteritis .. | .. | 4 | 3 | .. | 1 | .. |
| Measles with T.B. Meningitis .. | .. | 2 | 2 | .. | .. | .. |
| Mumps .. | .. | 55 | 53 | .. | 1 | 1 |
| Mumps with encephalitis .. | .. | 1 | 1 | .. | .. | .. |
| Para typhoid A .. | .. | 1 | 1 | .. | .. | .. |
| Para typhoid B .. | .. | 2 | 1 | .. | .. | 1 |
| Pneumonia .. | .. | 3 | 2 | 1 | .. | .. |
| Poliomyelitis (Paralytic) .. | 49 | 192 | 161 | .. | 6 | 74 |
| Poliomyelitis (non-Paralytic) .. | .. | 1 | 1 | .. | .. | .. |
| Post Poliomyelitis .. | 3 | 8 | 4 | .. | .. | 7 |
| Pulmonary Tuberculosis .. | .. | 5 | 3 | 2 | .. | .. |
| Purulent Meningitis .. | .. | 1 | .. | .. | 1 | .. |
| Rubella .. | .. | 16 | 15 | .. | .. | 1 |
| Salmonella Enteritis .. | .. | 3 | 3 | .. | .. | .. |
| Transverse Myelitis .. | .. | 2 | 1 | 1 | .. | .. |
| Typhoid Fever .. | 16 | 174 | 173 | 4 | 2 | 11 |
| Whooping cough .. | 2 | 39 | 41 | .. | .. | .. |
| Whooping cough with Broncho Pneumonia .. | .. | 8 | 1 | .. | 7 | .. |
| Other Diseases/Carriers .. | 9 | 855 | 844 | 6 | 8 | 6 |
| Total .. | 198 | 4,924 | 4,833 | 24 | 76 | 189 |

During the year there were 4,924 admissions with 76 deaths, a mortality rate of 1.54 per cent. The number of admissions was the highest ever recorded and showed a marked increase over the number of admissions (3,451) in 1959.

DANGEROUS INFECTIOUS DISEASES

There were no cases of small-pox, plague and cholera during the year.

DIPHThERIA

Table II

DIPHThERIA ADMISSIONS AND DEATHS FOR THE LAST 10 YEARS

| Year | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|----------------|-------|-------|-------|------|------|------|------|------|------|------|
| Admissions .. | 370 | 427 | 332 | 345 | 460 | 552 | 712 | 548 | 519 | 642 |
| Deaths .. | 91 | 80 | 47 | 34 | 41 | 47 | 58 | 34 | 23 | 32 |
| Mortality rate | 24.59 | 18.73 | 14.15 | 9.86 | 8.91 | 8.51 | 8.14 | 6.20 | 4.43 | 4.98 |

Table III

MONTHLY DIPHThERIA ADMISSIONS AND DEATHS FOR 1960

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---------------|------|------|------|-------|-----|------|------|------|-------|------|------|------|-------|
| Admissions .. | 61 | 52 | 42 | 45 | 53 | 58 | 70 | 45 | 48 | 41 | 60 | 67 | 642 |
| Deaths .. | 2 | 4 | 3 | 3 | 4 | 2 | 4 | 1 | .. | 3 | 2 | 4 | 32 |

During the year the number of diphtheria admissions was maintained at a high level. 642 cases were admitted, the second highest number of cases for a year on record. 32 cases died giving a mortality rate of 4.98 per cent. 48 cases required tracheotomy for respiratory obstruction of which 17 died from complications.

CARRIERS

601 contacts were admitted as diphtheria carriers.

Table IV

REGIONAL DISTRIBUTION OF DIPHThERIA ADMISSIONS BY MONTH

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|----------|------|------|------|-------|-----|------|------|------|-------|------|------|------|-------|
| Urban .. | 55 | 45 | 36 | 39 | 44 | 51 | 59 | 42 | 43 | 35 | 50 | 57 | 556 |
| Rural .. | 6 | 7 | 6 | 6 | 9 | 7 | 11 | 3 | 5 | 6 | 10 | 10 | 86 |
| Total .. | 61 | 52 | 42 | 45 | 53 | 58 | 70 | 45 | 48 | 41 | 60 | 67 | 642 |

Table V

DIPHTHERIA ADMISSIONS AND DEATHS BY AGE AND SEX GROUP

| Age group | | | ADMISSIONS | | Total Admissions | DEATHS | | Total Deaths |
|--------------|----|----|------------|-----|------------------|--------|----|--------------|
| | | | M. | F. | | M. | F. | |
| Under 1 year | .. | .. | 38 | 22 | 60 | 3 | 1 | 4 |
| 1 year | .. | .. | 28 | 16 | 44 | 2 | 2 | 4 |
| 2 years | .. | .. | 43 | 29 | 72 | 6 | 3 | 9 |
| 3 years | .. | .. | 48 | 46 | 94 | 3 | 4 | 7 |
| 4 years | .. | .. | 24 | 29 | 53 | 1 | .. | 1 |
| 5 years | .. | .. | 31 | 25 | 56 | 2 | 1 | 3 |
| 6—10 years | .. | .. | 75 | 89 | 164 | 2 | 1 | 3 |
| 11—15 years | .. | .. | 13 | 46 | 59 | .. | .. | .. |
| 16—20 years | .. | .. | 4 | 9 | 13 | .. | .. | .. |
| 21+ | .. | .. | 7 | 20 | 27 | .. | 1 | 1 |
| Total | | | 311 | 331 | 642 | 19 | 13 | 32 |

Table VI

DIPHTHERIA ADMISSIONS AND DEATHS BY ETHNIC GROUP

| Nationality | | | ADMISSIONS | | Total | DEATHS | | Total |
|-----------------|----|----|------------|-----|-------|--------|----|-------|
| | | | M. | F. | | M. | F. | |
| Europeans | .. | .. | .. | 2 | 2 | .. | .. | .. |
| Eurasians | .. | .. | 2 | 1 | 3 | .. | .. | .. |
| Chinese | .. | .. | 272 | 304 | 576 | 18 | 13 | 31 |
| Indians | .. | .. | 13 | 11 | 24 | .. | .. | .. |
| Malays/Javanese | .. | .. | 24 | 13 | 37 | 1 | .. | 1 |
| Others | .. | .. | .. | .. | .. | .. | .. | .. |
| Total | | | 311 | 331 | 642 | 19 | 13 | 32 |

Table VII

DIPHTHERIA:—TYPE OF CASES AND DEATHS

| Type | | | | | Admissions | Deaths |
|------------|----|----|----|----|------------|--------|
| Laryngeal | .. | .. | .. | .. | 63 | 20 |
| Pharyngeal | .. | .. | .. | .. | 148 | 11 |
| Faucial | .. | .. | .. | .. | 281 | 1 |
| Aural | .. | .. | .. | .. | 26 | .. |
| Nasal | .. | .. | .. | .. | 118 | .. |
| Cutaneous | .. | .. | .. | .. | 4 | .. |
| Buccal | .. | .. | .. | .. | 1 | .. |
| Stomal | .. | .. | .. | .. | 1 | .. |
| Total | | | | | 642 | 32 |

Table VIII

DIPHTHERIA: ADMISSIONS, DEATHS AND TRACHEOTOMY OPERATIONS

| | | | | |
|--------------------------------------|----|----|----|-------|
| Total Admissions | .. | .. | .. | 642 |
| Total Deaths | .. | .. | .. | 32 |
| Case mortality rate | .. | .. | .. | 4.98% |
| Number of Tracheotomies done | .. | .. | .. | 48 |
| Number of deaths after Tracheotomies | .. | .. | .. | 17 |

POLIOMYELITIS

Table IX

A. A. POLIOMYELITIS. POLIOMYELITIS ADMISSIONS AND DEATHS FOR LAST 10 YEARS

| Year | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|---------------|------|------|------|------|------|------|------|------|------|------|
| Admissions .. | 78 | 50 | 41 | 71 | 19 | 29 | 52 | 404 | 66 | 201 |
| Deaths .. | 8 | 8 | 5 | 2 | 2 | .. | .. | 12 | 3 | 6 |

201 cases of poliomyelitis were admitted during the year with 6 deaths, a mortality rate of 3 per cent. This is the highest figure recorded or a non-epidemic period. The number of poliomyelitis admissions remained at a high level from May till the end of the year with a peak August (37 cases) and September (33 cases). Most of the cases occurred in children aged 3 years and below.

POLIOVIRUS

Type 1 poliovirus remained dominant throughout the year and was responsible for the increased incidence of cases in the 2nd half of the year.

One of the fatal cases was a young American woman who developed poliomyelitis one month after arrival in Malaya. She developed extensive paralysis and required the use of an iron lung but subsequently succumbed with diabetes mellitus as a complication.

Serological examinations showed that she had no antibodies to all the three types of poliovirus at the onset of the illness but she subsequently developed antibodies to type 1 poliovirus. She had been advised to have poliomyelitis immunization before leaving America but refused. Her case has been described in some detail as an illustration of the danger to an unimmunised person who travels from an area with little virus to an area where the virus is abundant.

Table X

POLIOMYELITIS ADMISSIONS AND DEATHS BY MONTH

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---------------|------|------|------|-------|-----|------|------|------|-------|------|------|------|-------|
| Admissions .. | 7 | 11 | 4 | 9 | 13 | 21 | 19 | 37 | 33 | 18 | 16 | 13 | 201 |
| Deaths .. | .. | .. | .. | .. | .. | .. | 1 | 2 | .. | .. | 3 | .. | 6 |

Table XI

REGIONAL DISTRIBUTION OF POLIOMYELITIS CASES BY MONTH

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|----------|------|------|------|-------|-----|------|------|------|-------|------|------|------|-------|
| Urban .. | 6 | 5 | 4 | 7 | 10 | 11 | 15 | 24 | 21 | 9 | 9 | 7 | 128 |
| Rural .. | 1 | 6 | .. | 2 | 3 | 10 | 4 | 13 | 12 | 9 | 7 | 6 | 73 |
| Total .. | 7 | 11 | 4 | 9 | 13 | 21 | 19 | 37 | 33 | 18 | 16 | 13 | 201 |

Table XII

AGE, SEX AND ETHNIC GROUPS OF POLIOMYELITIS CASES

| Age Group | | | EUROPEANS | | EURASIANS | | CHINESE | | INDIANS | | MALAYS | | OTHERS | | TOTAL | |
|-----------------|----|----|-----------|----|-----------|----|---------|----|---------|----|--------|----|--------|----|-------|----|
| | | | M | F | M | F | M | F | M | F | M | F | M | F | M | F |
| Under 1 year .. | .. | .. | .. | .. | .. | .. | 21 | 15 | 6 | 1 | 1 | 1 | .. | .. | 28 | 17 |
| 1 year .. | .. | .. | .. | .. | .. | .. | 17 | 13 | 4 | 3 | 2 | 1 | .. | .. | 23 | 17 |
| 2 years .. | .. | .. | .. | .. | .. | .. | 30 | 15 | 7 | 4 | 1 | 2 | .. | .. | 38 | 21 |
| 3 years .. | .. | .. | .. | .. | .. | .. | 15 | 10 | 1 | 2 | 1 | .. | .. | .. | 17 | 12 |
| 4 years .. | .. | .. | .. | .. | .. | .. | 7 | 2 | .. | .. | 1 | .. | .. | .. | 8 | 2 |
| 5 years .. | .. | .. | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | .. | .. | .. | 2 | 2 |
| 6-10 years .. | .. | .. | .. | .. | .. | .. | 4 | 5 | .. | 1 | 1 | .. | .. | 1 | 5 | 7 |
| 11-15 years .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 16-20 years .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20 + .. | .. | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 2 |
| Total .. | .. | .. | 1 | .. | .. | .. | 96 | 63 | 18 | 11 | 7 | 4 | .. | 1 | 121 | 80 |

Table XIII

TYPHOID FEVER, ADMISSIONS AND DEATHS BY ETHNIC GROUPS
(Deaths in brackets)

| Age | | | 0-10 | | 11-19 | | 20 + | | Total | |
|--------------|----|----|------|----|-------|------|------|----|-------|-------|
| Sex | | | M | F | M | F | M | F | M | F |
| Europeans .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Eurasians .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Chinese .. | .. | .. | 17 | 10 | 32 | 9(1) | 14 | 17 | 63 | 36(1) |
| Indians .. | .. | .. | 2 | 1 | 5 | .. | 6 | .. | 13 | 1 |
| Malays .. | .. | .. | 9 | 12 | 8(1) | 10 | 9 | 6 | 26(1) | 28 |
| Javanese .. | .. | .. | .. | 1 | .. | .. | 3 | 1 | 3 | 2 |
| Others .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 2 | .. |
| Total .. | .. | .. | 29 | 24 | 46 | 19 | 32 | 24 | 107 | 67 |

Table XIV

TYPHOID FEVER—ADMISSIONS AND DEATHS BY MONTH

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---------------|------|------|------|-------|-----|------|------|------|-------|------|------|------|-------|
| Admissions .. | 12 | 17 | 7 | 4 | 12 | 10 | 14 | 9 | 58 | 10 | 10 | 11 | 174 |
| Deaths .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 2 |

174 cases of typhoid fever were admitted during the year, the highest figure recorded since the 2nd World War.

There were two deaths, a mortality rate of 1.15 per cent. One case died of acute toxæmia with cardiac failure and the other of hepatitis with acute liver failure as a complication.

The large number of admissions was due in part to an outbreak of typhoid fever which broke out without warning on the Pulau Bukom islands in September.

PULAU BUKOM TYPHOID OUTBREAK

During the year an explosive outbreak of typhoid fever occurred on Pulau Bukom Besar and the adjacent small islands. In all sixty-one cases of fever were admitted to the hospital of which fifty-three cases were confirmed as typhoid fever.

The outbreak started in September when fifty-five cases of fever were admitted to the hospital of which forty-nine cases were confirmed as typhoid fever. In October, another four cases of fever were admitted of which two cases were proved to be typhoid. These two cases were admitted in a critical condition but recovered after a stormy illness. In November another two cases of typhoid fever were admitted with typhoid fever. There were no deaths.

At the same time, ninety-four hawkers and food handlers from Pulau Bukom were admitted and screened for the carrier state. The results were negative and the source of the outbreak remained unascertained.

PULAU BUKOM TYPHOID CASES BY ETHNIC, SEX AND AGE GROUP

| Age | | | 0-5 | | 6-10 | | 11-20 | | 21-30 | | 31+ | | Total | |
|------------|----|----|-----|----|------|----|-------|----|-------|----|-----|----|-------|----|
| Sex | | | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. |
| Chinese | .. | .. | .. | .. | 1 | 2 | 4 | 2 | .. | .. | .. | 2 | 5 | 6 |
| Malays | .. | .. | 1 | 3 | 6 | 6 | 4 | 12 | 4 | .. | 1 | 1 | 16 | 22 |
| Javanese | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. |
| Boyanese | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. |
| Indonesian | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Indians | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 | .. |
| Total | | | 1 | 3 | 8 | 8 | 9 | 15 | 4 | .. | 2 | 3 | 24 | 29 |

TYPHOID CARRIERS

During the year, a total of 446 persons from ice-cream manufacturers, dairy farms, public water works and Pulau Bukom were investigated for the typhoid carrier state.

CHICKENPOX

1,453 cases of Chickenpox were admitted during the year.

Table XV

CHICKENPOX ADMISSIONS BY AGE, SEX AND ETHNIC GROUPS

| Age | | | 0-10 | | 11-19 | | 20 + | | Total | | Total Admis- sions |
|-----------|----|----|------|-----|-------|-----|------|-----|-------|-----|-----------------------|
| Sex | | | M | F | M | F | M | F | M | F | |
| Eurasians | .. | .. | 2 | 3 | 3 | 5 | 9 | 6 | 14 | 14 | 28 |
| Europeans | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | 2 | 2 |
| Chinese | .. | .. | 72 | 60 | 63 | 24 | 77 | 44 | 212 | 128 | 340 |
| Indians | .. | .. | 75 | 59 | 80 | 49 | 370 | 131 | 525 | 239 | 764 |
| Malays | .. | .. | 52 | 28 | 38 | 20 | 88 | 44 | 178 | 92 | 270 |
| Javanese | .. | .. | 3 | 7 | .. | .. | 2 | 2 | 5 | 9 | 14 |
| Others | .. | .. | 2 | 11 | 5 | 6 | 6 | 5 | 13 | 22 | 35 |
| Total .. | | | 206 | 169 | 189 | 105 | 552 | 232 | 947 | 506 | 1,453 |

Table XVI

CHICKENPOX CASES, REGIONAL DISTRIBUTION BY MONTH

| Month | Jan. | Feb. | Mar. | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|----------|------|------|------|-------|-----|------|------|------|-------|------|------|------|-------|
| Urban | 122 | 124 | 187 | 170 | 136 | 78 | 100 | 96 | 28 | 101 | 80 | 100 | 1,322 |
| Rural.. | 16 | 15 | 13 | 12 | 14 | 7 | 10 | 9 | 1 | 8 | 9 | 17 | 131 |
| Total .. | 138 | 139 | 200 | 182 | 150 | 85 | 110 | 105 | 29 | 109 | 89 | 117 | 1,453 |

Table XVII

DYSENTERY

| Type | | | | Admissions | Deaths |
|------------------------------|-------------|----|----|------------|--------|
| 1. Amœbic Dysentery | .. | .. | .. | 249 | 1 |
| 2. Amœbic and Bac. Dysentery | | .. | .. | 3 | 1 |
| 3. Bac. Dysentery | (a) Flexner | .. | .. | 40 | } 70 |
| | (b) Sonne | .. | .. | 23 | |
| | (c) Shiga | .. | .. | 7 | |
| 4. Clinical Dysentery | .. | .. | .. | 161 | .. |
| Total | | | | 483 | 2 |

DYSENTERY CARRIERS

Eight cases of Bacillary Dysentery Carrier (Flexner) were admitted for the year. These cases were detected at the Naval Base Hospital in the course of routine examination of applicants for the job of domestic servants.

Table XVIII

ADMISSIONS OF THE MORE IMPORTANT DISEASES FOR THE LAST TEN YEARS

| Diseases | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Amœbic Dysentery | 105 | 22 | 134 | 122 | 136 | 126 | 197 | 156 | 112 | 249 |
| Bacillary Dysentery | 18 | 9 | 25 | 18 | 17 | 26 | 74 | 60 | 36 | 70 |
| Chickenpox | 610 | 450 | 836 | 1,313 | 1,769 | 1,488 | 1,039 | 472 | 987 | 1,453 |
| Clinical Dysentery | 40 | .. | 16 | 34 | 35 | 63 | 150 | 92 | 68 | 161 |
| Cerebro-Spinal Meningitis | 4 | 2 | 4 | 2 | .. | .. | .. | 4 | .. | .. |
| Diphtheria | 370 | 427 | 332 | 345 | 460 | 552 | 712 | 547 | 519 | 642 |
| Erysipelas | 4 | 3 | .. | 3 | .. | 2 | 3 | 1 | .. | 3 |
| Measles | 204 | 142 | 117 | 182 | 200 | 301 | 153 | 357 | 146 | 178 |
| Mumps | .. | 15 | 9 | 35 | 54 | 52 | 14 | 43 | 47 | 55 |
| Pneumonia | .. | .. | .. | .. | .. | .. | .. | 1 | 4 | 3 |
| Plague | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Poliomyelitis | 78 | 50 | 41 | 70 | 19 | 37 | 52 | 405 | 66 | 201 |
| Rubella | 11 | 9 | .. | 1 | .. | 86 | 36 | 7 | 9 | 16 |
| Scarlet Fever | 79 | .. | .. | .. | .. | .. | 1 | .. | .. | .. |
| Small-pox | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. |
| Tropical Typhus | 7 | 92 | 4 | 7 | .. | 1 | .. | 1 | .. | .. |
| Typhoid Fever | 91 | 117 | 91 | 125 | 114 | 76 | 118 | 127 | 160 | 174 |
| Whooping Cough | 5 | 3 | .. | 10 | 5 | 85 | 30 | 38 | 15 | 39 |
| Cholera | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other Diseases Carriers and Observations | 591 | 455 | 440 | 647 | 503 | 936 | 1,083 | 1,368 | 1,272 | 1,680 |
| Total .. | 2,217 | 1,796 | 2,049 | 2,914 | 3,312 | 3,831 | 3,662 | 3,679 | 3,451 | 4,924 |

INFECTIOUS MONONUCLEOSIS

A British Seaman who had recently arrived from Australia was referred to the hospital by the Company Doctor as a suspected case of Diphtheria. He had enlarged neck glands and patches in the throat. A diagnosis of glandular fever was made and this was subsequently confirmed by accessory investigations. He made an uneventful recovery.

MEASLES

Table XIX

OTHER DISEASES

| Diseases | Remain- ing 31-12-59 | Admit- ted | Dis- charged | Trans- ferred | Died | Remain- ing 31-12-60 |
|---------------------------------------|----------------------------|---------------|-----------------|------------------|------|----------------------------|
| Abscess | .. | 5 | 5 | .. | .. | .. |
| Amœbic Dysentery with Hepatitis | .. | 2 | 1 | .. | 1 | .. |
| Amœbic Hepatitis | .. | 1 | 1 | .. | .. | .. |
| Anxiety Neurosis | .. | 1 | 1 | .. | .. | .. |
| Aseptic Meningitis | .. | 1 | 1 | .. | .. | .. |
| Asthmatic Bronchitis | .. | 4 | 4 | .. | .. | .. |
| Arthritis | .. | 4 | 3 | 1 | .. | .. |
| Bac. Dysentery Carrier | .. | 8 | 8 | .. | .. | .. |
| Bell's Palsy | .. | 4 | 3 | .. | .. | 1 |
| Burns | .. | 1 | 1 | .. | .. | .. |
| Bronchitis acute | .. | 7 | 7 | .. | .. | .. |
| Cervical Spondylitis | .. | 1 | 1 | .. | .. | .. |
| Cerebral Hæmorrhage | .. | 1 | .. | .. | 1 | .. |
| Cervical Adenitis | .. | 2 | 2 | .. | .. | .. |
| Cholecystitis acute | .. | 2 | 2 | .. | .. | .. |
| Carried forward .. | .. | 44 | 40 | 1 | 2 | 1 |

Table XIX—continued

OTHER DISEASES—continued

| Diseases | Remain- ing 31-12-59 | Admit- ted | Dis- charged | Trans- ferred | Died | Remain- ing 31-12-60 |
|--|----------------------------|---------------|-----------------|------------------|------|----------------------------|
| <i>Brought forward</i> .. | .. | 44 | 40 | 1 | 2 | 1 |
| Charcot's Spine .. | .. | 1 | 1 | .. | .. | .. |
| Colitis .. | 1 | 5 | 6 | .. | .. | .. |
| Contusion .. | .. | 2 | 2 | .. | .. | .. |
| Coronary Thrombosis .. | .. | 1 | .. | 1 | .. | .. |
| Carcinoma rectum .. | .. | 4 | 3 | .. | 1 | .. |
| Coryza acute .. | .. | 5 | 5 | .. | .. | .. |
| Dengue .. | .. | 1 | 1 | .. | .. | .. |
| Dermatitis .. | .. | 4 | 4 | .. | .. | .. |
| Drug Allergy .. | .. | 3 | 3 | .. | .. | .. |
| Eczema .. | .. | 1 | 1 | .. | .. | .. |
| Exfoliative Dermatitis .. | .. | 1 | .. | .. | 1 | .. |
| Fracture Humerus .. | .. | 1 | 1 | .. | .. | .. |
| Furunculosis .. | .. | 4 | 4 | .. | .. | .. |
| Frambœsia .. | .. | 1 | 1 | .. | .. | .. |
| Glossitis acute .. | .. | 1 | 1 | .. | .. | .. |
| Gastro-enteritis with obstructive Jaundice .. | .. | 1 | .. | .. | 1 | .. |
| Herphangina .. | .. | 8 | 8 | .. | .. | .. |
| Hydropneumothorax .. | 1 | .. | .. | 1 | .. | .. |
| Hæmorrhoides .. | .. | 5 | 5 | .. | .. | .. |
| Impetigo .. | .. | 8 | 8 | .. | .. | .. |
| Infectious Mononucleosis .. | .. | 1 | 1 | .. | .. | .. |
| Infective Hepatitis .. | .. | 6 | 6 | .. | .. | .. |
| Infective Polyneuritis .. | 1 | 4 | 5 | .. | .. | .. |
| Laryngo-tracheo-bronchitis .. | .. | 8 | 7 | .. | 1 | .. |
| Lobar Pneumonia .. | .. | 1 | 1 | .. | .. | .. |
| Leukæmia .. | .. | 2 | 1 | 1 | .. | .. |
| Lambliasis .. | .. | 1 | 1 | .. | .. | .. |
| Laryngitis acute .. | .. | 13 | 10 | 1 | .. | 2 |
| Measles; Mental Deficiency .. | .. | 2 | 2 | .. | .. | .. |
| Myositis, acute .. | .. | 5 | 5 | .. | .. | .. |
| Nephrotic Syndrome .. | .. | 1 | 1 | .. | .. | .. |
| Nasopharyngitis acute .. | .. | 7 | 7 | .. | .. | .. |
| Nephritis, acute .. | .. | 2 | 2 | .. | .. | .. |
| N.A.D. .. | .. | 18 | 18 | .. | .. | .. |
| Otitis Media .. | 1 | 1 | 2 | .. | .. | .. |
| Osteomyelitis .. | .. | 1 | 1 | .. | .. | .. |
| Observation .. | 2 | 45 | 46 | .. | .. | 1 |
| Pharyngitis .. | .. | 5 | 5 | .. | .. | .. |
| Pompholyx .. | .. | 1 | .. | .. | .. | 1 |
| Papular Urticaria .. | .. | 1 | 1 | .. | .. | .. |
| P.U.O. .. | .. | 1 | 1 | .. | .. | .. |
| Pyelonephritis .. | .. | 3 | 3 | .. | .. | .. |
| Pulmonary Embolism C'Pox .. | .. | 1 | .. | .. | 1 | .. |
| Rheumatism acute .. | .. | 2 | 2 | .. | .. | .. |
| Rheumatoid Arthritis .. | .. | 2 | 2 | .. | .. | .. |
| Rhinitis, acute .. | .. | 3 | 3 | .. | .. | .. |
| Respiratory disease, acute .. | .. | 1 | 1 | .. | .. | .. |
| Septic Foot .. | .. | 1 | 1 | .. | .. | .. |
| Sinusitis .. | .. | 1 | 1 | .. | .. | .. |
| Stomatitis acute .. | .. | 3 | 3 | .. | .. | .. |
| Sciaticca .. | .. | 1 | 1 | .. | .. | .. |
| Slipped Lumbo Sacral Disc .. | .. | 1 | 1 | .. | .. | .. |
| Septicæmia, acute .. | .. | 1 | 1 | .. | .. | .. |
| <i>Carried forward</i> .. | 6 | 247 | 236 | 5 | 7 | 5 |

Table XIX—continued

OTHER DISEASES—continued

| Diseases | | | Remain- ing 31-12-59 | Admit- ted | Dis- charged | Trans- ferred | Died | Remain- ing 31-12-60 |
|---------------------------|------|---------|----------------------------|---------------|-----------------|------------------|------|----------------------------|
| <i>Brought forward</i> .. | | | 6 | 247 | 236 | 5 | 7 | 5 |
| Tetanus | .. | .. | .. | 1 | .. | 1 | .. | .. |
| Thyrotoxicosis | with | Cardiac | .. | 1 | .. | .. | 1 | .. |
| Failure | .. | .. | .. | 2 | 2 | .. | .. | .. |
| Thalassemia | .. | .. | .. | 8 | 8 | .. | .. | .. |
| Thrush .. | .. | .. | 2 | 144 | 146 | .. | .. | .. |
| Tonsillitis | .. | .. | .. | 5 | 4 | .. | .. | 1 |
| Typhoid carrier | .. | .. | 1 | 446 | 447 | .. | .. | .. |
| ? Typhoid carrier | .. | .. | .. | 1 | ! | .. | .. | .. |
| Urticaria | .. | .. | .. | .. | .. | .. | .. | .. |
| Total .. | | | 9 | 855 | 844 | 6 | 8 | 6 |

MEASLES

238 cases of measles were admitted of which 64 cases had Broncho Pneumonia as a complication with 3 deaths. 1 case died of encephalitis, a complication. 4 cases had gastro-enteritis with 1 death.

Table XX

NUMBER OF ADMISSIONS, DAYS IN HOSPITAL AND DEATHS
BY ETHNIC GROUPS

| Ethnic Group | REMAINING 1959 | | ADMITTED 1960 | | TOTAL | | Deaths |
|---------------------------|--------------------|-------------------------------|--------------------|-------------------------------|--------------------|-------------------------------|--------|
| | No. of Patients | No. of Days in Hospital | No. of Patients | No. of Days in Hospital | No. of Patients | No. of Days in Hospital | |
| Europeans | .. | .. | 13 | 174 | 13 | 174 | 1 |
| Eurasians | 4 | 10 | 38 | 304 | 42 | 314 | .. |
| Chinese | 131 | 9,374 | 2,940 | 40,285 | 3,071 | 49,659 | 58 |
| Indians and Pakistanis .. | 47 | 1,320 | 1,216 | 11,236 | 1,263 | 12,556 | 11 |
| Malays | 12 | 375 | 586 | 6,323 | 598 | 6,698 | 4 |
| Javanese | 1 | 9 | 66 | 514 | 67 | 523 | 1 |
| Others | 3 | 237 | 65 | 458 | 68 | 695 | 1 |
| Total .. | 198 | 11,325 | 4,924 | 59,294 | 5,122 | 70,619 | 76 |

Table XXI

| | Remain- ing 1959 | Admit- ted 1960 | Trans- ferred to other hospital | Died | Remain- ing 1960 | Deaths Percen- tage | Average daily number of patients |
|-----------|------------------------|-----------------------|--|------|------------------------|---------------------------|--|
| Male .. | 119 | 3,021 | 13 | 42 | 101 | 1.33 % | .. |
| Female .. | 79 | 1,903 | 11 | 34 | 88 | 1.71 % | 192 |
| Total .. | 198 | 4,924 | 24 | 76 | 189 | 1.48 % | 192 |

Maximum Capacity of the Hospital = 250 beds.

AMBULANCES

A total of 2,344 cases of infectious diseases were removed by the Hospital Ambulances during the year 1960.

STAFF

Resignations

There were five resignations during the year.

1. Staff Nurse Oh Chwee Ean, with effect from 29-9-60.
2. Nursing Assistant J. Pereira, with effect from 25-3-60.
3. Senior Attendant, Chan Ah Moi, with effect from 1-10-60
4. Junior Attendant, Yeo Aik Poh, with effect from 16-1-60.
5. Junior Attendant, Liaw Peck Choo, with effect from 21-11-60.

Termination of Service

Three officers had their services terminated.

1. Mr. Yeo Bah Chee, Temporary Physiotherapist with effect from 1-4-60.
2. Junior Attendant, Samat bin Abdullah, with effect from 28-4-60.
3. Junior Attendant, Joremi bin Arip, with effect from 4-11-60.

Transfer of Staff

Miss Edith Rose McIntyre, clerical officer, was transferred to Middleton Hospital from the City Laboratory, with effect from 29th December, 1960 to fill up the existing vacancy.

ACKNOWLEDGEMENT

I wish to thank the Lady Medical Officer in charge of the Maternal and Child Health Services, for sending four Health Visitors, and the Matron, Tan Tock Seng Hospital for sending six Assistant Nurses to this Hospital on 9th September, 1960 to assist with the Typhoid Outbreak in Pulau Bukom and the adjacent small Islands.

We are grateful to Professors Monteiro and Ransome for acting as consultants and to Professor Karlen and Mr. Friedman for supervising the orthopaedic treatment of post-poliomyelitis cases.

In conclusion I wish to thank the Staff for their co-operation, loyalty and excellent work during the year.

Dr. K. W. LEONG,
*Acting Medical Superintendent,
Middleton Hospital.*

CITY ABATTOIRS

I HAVE THE HONOUR to submit my report for the year ending 31st December, 1960.

During the year 529,094 animals were slaughtered in the City Abattoirs: 435,124 were swine, 6,219 oxen, 3,474 buffaloes, 16 horses, 81,984 sheep and 2,277 goats.

257 swine, 28 oxen, 1 buffalo, 549 sheep and 11 goats died in the pens.

Twenty-three swine died in the depot.

Eighty-six swine, twelve oxen, six buffaloes and eleven sheep were totally condemned.

I have the honour to be,
Sir,
Your obedient servant,

M. G. BYRNE,
Acting Superintendent of Abattoirs.

| | Swine | Oxen | Buffaloes | Horses | Sheep | Goats |
|---|---------|-------|-----------|--------|--------|-------|
| Admitted for slaughter, 1960 .. | 435,408 | 6,224 | 3,505 | 16 | 82,659 | 2,289 |
| Slaughtered 1960 | 435,124 | 6,219 | 3,474 | 16 | 81,984 | 2,277 |
| Died in pens | 257 | 28 | 1 | .. | 549 | 11 |
| Died in depot | 23 | .. | .. | .. | .. | .. |
| Carcases condemned .. | 86 | 12 | 6 | .. | 11 | .. |
| Diseased organs, etc. condemned and destroyed in lbs. .. | 26,576 | 8,879 | 10,268 | .. | 18,439 | 80 |

TOTAL RECEIPTS FOR THE YEAR 1960

| | \$ | c. |
|---|-----------|----|
| Fees for slaughter at Cattle section .. | 29,289 | 00 |
| Fees for slaughter at Sheep section .. | 84,938 | 00 |
| Fees for slaughter at Pig section .. | 870,816 | 00 |
| Fees for storage at French Road Depot .. | 6,130 | 35 |
| Receipts as pen rents (all slaughterhouses) | 38,291 | 80 |
| Receipts for sale of blood and Pig's bristles | 120 | 00 |
| Fees for inspection of wild boar carcasses .. | 300 | 00 |
| Total Receipts for the year 1960 | 1,029,885 | 15 |
| Less refund of slaughter fees | 1,151 | 00 |
| Total Net Receipts for the year 1960 .. | 1,028,734 | 15 |
| Total Net Receipts for the year 1959 .. | 1,033,833 | 25 |

Special slaughtering licences issued during the year 1960:

| | |
|--|--------|
| 2 oxen @ \$15 each, 23 sheep and 3 goats | |
| @ \$5 each | 160 00 |

REPORTS FOR THE YEAR ENDING 31ST DECEMBER, 1960

| | Swine | Oxen | Buffaloes | Horses | Sheep | Goats |
|---|---------|-------|-----------|--------|--------|-------|
| Number slaughtered .. | 435,124 | 6,219 | 3,474 | 16 | 81,984 | 2,277 |
| Died in pens | 257 | 28 | 1 | .. | 549 | 11 |
| Died in depot | 23 | .. | .. | .. | .. | .. |
| Carcases condemned .. | 86 | 12 | 6 | .. | 11 | .. |
| Diseased organs, etc. condemned and destroyed in lbs. .. | 26,576 | 8,879 | 10,268 | .. | 18,439 | 80 |

CASES OF PARTIAL CONDEMNATION

| | Swine | Oxen | Buffa- loes | Horses | Sheep | Goats |
|-----------------------------|--------|-------|----------------|--------|--------|-------|
| Abscesses | 16,508 | 10 | 2 | .. | 13 | .. |
| Bruising/Fracture | 2,465 | 53 | 4 | .. | 104 | 1 |
| Caseous Lymphadenitis | .. | .. | .. | .. | 10,625 | .. |
| Cirrhosis | 119 | .. | .. | .. | 29 | 5 |
| Congestion | 17,283 | 30 | 8 | .. | 10,787 | 12 |
| Cysts | 22 | 25 | .. | .. | 76 | 1 |
| Fascioliasis | .. | 1,783 | 1,861 | .. | .. | 34 |
| Fatty Infiltration | 148 | 1 | .. | .. | 369 | 3 |
| Hydronephrosis | 220 | .. | .. | .. | 4 | .. |
| Inflammation | 217 | 13 | .. | .. | 43 | .. |
| Maggots | .. | .. | .. | .. | 35 | .. |
| Mastitis (Mammitis) | .. | 35 | .. | .. | .. | .. |
| Melanosis | 1 | .. | .. | .. | 13 | 2 |
| Metritis | .. | 6 | .. | .. | .. | .. |
| Necrosis | 19 | .. | .. | .. | .. | .. |
| Nephritis | 176 | .. | .. | .. | 18 | .. |
| Onchocerciasis | .. | 35 | .. | .. | .. | .. |
| Parasites | 193 | .. | .. | .. | .. | .. |
| Pericarditis | 2 | .. | .. | .. | 5 | .. |
| Pleurisy | 753 | 2 | 2 | .. | 101 | .. |
| Pneumonia | 1,004 | 6 | 6 | .. | 95 | .. |
| Pregnancy | 39 | 137 | 28 | .. | 7 | 2 |
| Sarcosporidiosis | .. | .. | 1,683 | .. | .. | .. |
| Strongylosis | .. | .. | .. | .. | 1,339 | .. |
| Tuberculosis | .. | 29 | .. | .. | .. | .. |
| Telangiectasis | .. | 20 | .. | .. | .. | .. |

CASES OF TOTAL CONDEMNATION FOR THE YEAR 1960

| | Swine | Oxen | Buffaloes | Sheep |
|--|-------|------|-----------|-------|
| Bruising (Generalised) .. | 1 | .. | .. | .. |
| Cysticercosis .. | 30 | .. | .. | .. |
| Dropsy with Emaciation .. | 7 | 3 | 1 | .. |
| Extreme Emaciation with Mammitis .. | .. | 1 | .. | .. |
| Extreme Emaciation with T.B. .. | 2 | .. | .. | .. |
| Jaundice .. | 8 | 1 | .. | 2 |
| Moribund .. | 2 | .. | .. | .. |
| Multiple Abscesses .. | 3 | .. | .. | .. |
| Multiple Abscesses with Extreme Emaciation and Dropsy .. | 1 | .. | .. | .. |
| Pleurisy and T.B. with Emaciation .. | .. | 1 | .. | .. |
| Pneumonia with Dropsy .. | 1 | .. | .. | .. |
| Pyrexia .. | 21 | 1 | 2 | 9 |
| Pyrexia with Necrosis .. | .. | 2 | .. | .. |
| Sarcosporidiosis (Generalised) .. | .. | .. | 3 | .. |
| Septicæmia .. | 5 | .. | .. | .. |
| Splashing (Generalised) .. | 1 | .. | .. | .. |
| Septic Peritonitis .. | 1 | .. | .. | .. |
| Swine Erysipelas .. | 2 | .. | .. | .. |
| Tuberculosis (Generalised) .. | .. | 3 | .. | .. |
| Uræmia .. | 1 | .. | .. | .. |
| Total .. | 86 | 12 | 6 | 11 |

ANIMALS SLAUGHTERED MONTHLY IN THE CITY ABATTOIRS DURING THE YEAR 1960

| | Swine | Oxen | Buffaloes | Horses | Sheep | Goats |
|----------------------------------|---------|-------|-----------|--------|--------|-------|
| January .. | 38,289 | 475 | 303 | 2 | 7,393 | 245 |
| February .. | 35,603 | 404 | 383 | 5 | 7,126 | 166 |
| March .. | 36,539 | 455 | 564 | 1 | 8,061 | 185 |
| April .. | 36,242 | 612 | 228 | 3 | 6,413 | 203 |
| May .. | 37,399 | 480 | 381 | .. | 6,797 | 175 |
| June .. | 34,814 | 706 | 130 | 1 | 7,230 | 163 |
| July .. | 35,262 | 630 | 91 | 3 | 5,683 | 195 |
| August .. | 35,745 | 628 | 103 | .. | 6,324 | 131 |
| September .. | 35,567 | 420 | 316 | 1 | 6,901 | 203 |
| October .. | 36,433 | 531 | 254 | .. | 7,161 | 199 |
| November .. | 35,115 | 410 | 357 | .. | 5,921 | 138 |
| December .. | 38,116 | 468 | 364 | .. | 6,974 | 274 |
| Totalslaughtering during 1960 .. | 435,124 | 6,219 | 3,474 | 16 | 81,984 | 2,277 |
| Totalslaughtering during 1959 .. | 436,454 | 5,868 | 3,379 | 8 | 81,717 | 3,293 |

ITEMS OF INTEREST FOR THE YEAR 1960

- (1) The drainage at the cattle section was connected to the public sewer during the year.
- (2) The roof of the cattle abattoir was completely renewed and the building renovated.
- (3) New sheep pens were constructed at the sheep abattoir as the number of pens for storing sheep was insufficient.
- (4) The City Veterinary Surgeon Mr. J. C. Drake was Malayanised and succeeded by Mr. Cho Chak Nam who resigned shortly afterwards.

M. G. BYRNE,
Acting Superintendent of Abattoirs.

PUBLIC HEALTH INSPECTORS' SECTION

STAFF

The staff as at 31st December, 1960 comprised one Chief Public Health Inspector, two Acting Divisional Public Health Inspectors, one Acting Chief Food and Drugs Inspector, two Acting Food and Drugs Inspectors, twenty-seven qualified Public Health Inspectors, and eight Probationary Public Health Inspectors.

Mr. J. Ferguson, Senior Public Health Inspector, was seconded to act as Superintendent. City Cleansing Department, as from 4th May, 1960.

RESIGNATIONS

Mr. H. R. Perry, Public Health Inspector, resigned from City Council service on 1st August, 1960.

SANITARY WORK

During the year there were 11,704 man-working days, 946 days Vacation Leave were granted and 142 days Sick Leave taken.

2,722 days were spent on Meat Inspection at the City Abattoirs, 1,248 days in the Food and Drugs Section and the remaining 7,734 days were utilised as follows:—

Kampong Inspections

953 man-working hours were spent during which 8,364 huts were inspected in kampongs in connection with Kampong Sanitation.

House Inspection

In connection with environmental sanitation 98 man-working hours were spent in inspecting 674 houses.

Investigation of Complaints

A total of 1,957 complaints were received from the general public during the year involving 64,533 visits.

| Complaints | | | No. of Complaints | Primary Visits | Revisits | Total visits |
|------------|----|----|-------------------|----------------|----------|--------------|
| Mosquitoes | .. | .. | 1,006 | 11,502 | } 48,005 | 64,533 |
| Flies | | | 120 | 1,761 | | |
| Others .. | .. | .. | 831 | 3,265 | | |

Mosquito breeding was found in 4,044 premises. Fly breeding was found in 572 premises.

Infectious Diseases

The following cases of Infectious Disease were investigated and dealt with involving 4,664 visits:—

| | | | | | |
|---------------|----|-------|--------------|----|-----|
| Poliomyelitis | .. | 119 | Typhus | .. | 1 |
| Diphtheria | .. | 555 | Typhoid | .. | 98 |
| Chickenpox | .. | 1,800 | Para-typhoid | .. | 3 |
| Erysipelas | .. | 3 | Leprosy | .. | 119 |

4,935 throat swabs were taken from diphtheria contacts where necessary.
185 cases of Infectious Disease were removed to Middleton Hospital by the Disinfecting Officer.
1,535 premises were disinfected.
Ninety-three premises in which cases of Poliomyelitis occurred and their vicinities were dealt with by Barrier Spraying.

MEAT INSPECTION

Seven Public Health Inspectors were sent monthly to the City Abattoirs to assist in the inspection of meat. A total of 2,722 man-working days were spent.

FOOD AND DRUGS

904 samples were taken by the Public Health Inspectors for Chemical analysis and bacteriological examination. For details please see Appendix I, Table A.
A total of 1,886 samples of food, drugs and other specimens were taken by the Food and Drugs Inspectors for Chemical analysis, bacteriological examination and breaches of the Sale of Food and Drugs Ordinance (Cap. 148) and the Food and Drugs Regulations, 1957. Of these 1,435 samples were taken in the City Area. Details of the nature of samples are shown in Appendix I, Table B.

Routine inspection of premises in connection with food and drugs was carried out by the Food and Drugs Inspectors involving 13,524 visits. 144,235 lb. of unsound food and 2,555 packages of drugs were surrendered and destroyed.

OFFENCES AND PROSECUTIONS

During the year 210 summonses were applied for for all types of infringements of the Ordinances and By-laws. There were 164 prosecutions with 161 convictions.
Twelve summons were not served, one case was acquitted and two cases were discharged.
Total fines amounted to \$13,869.00.

INSPECTION OF PREMISES

Inspections carried out in other classes of premises not included in the above, involved a total of 54,851 visits as follows:—

| | | | | |
|-------------------------|----|----|----|-------|
| Sauce Factories | .. | .. | .. | 160 |
| Oil Mills | .. | .. | .. | 120 |
| Saw Mills | .. | .. | .. | 78 |
| Smoke Observations | .. | .. | .. | 13 |
| Places of Entertainment | .. | .. | .. | 520 |
| Markets | .. | .. | .. | 234 |
| Coffee Grinding Mills | .. | .. | .. | 65 |
| <i>Carried forward</i> | | | | 1,190 |

| | | | | | |
|---------------------|----|----|------------------------|----|--------|
| | | | <i>Brought forward</i> | .. | 1,190 |
| Goldsmiths | .. | .. | .. | | 34 |
| Printing Presses | .. | .. | .. | | 654 |
| Licensed Premises | .. | .. | .. | | 36,383 |
| Unlicensed Premises | .. | .. | .. | | 1,238 |
| Public Houses | .. | .. | .. | | 606 |
| Hotels | .. | .. | .. | | 527 |
| Serving Notices | .. | .. | .. | | 848 |
| Inspecting Notices | .. | .. | .. | | 2,304 |
| Cautioning Cases | .. | .. | .. | | 85 |
| Other Premises | .. | .. | .. | | 10,982 |
| | | | Total | .. | 54,851 |

In connection with the visits to:—

- (a) Places of Entertainment;
- (b) Printing Presses;
- (c) Public Houses;
- (d) Hotels.

These inspections were made with a view to putting up recommendations with regard to the licensing, registration or renewal of licences by other Licensing Authorities.

NOTICES

A total of 990 notices was served during the year. The following is a summary of notices served.

| Type of Notices | B/f | Served | Total | Complied with | Cancelled | C/f |
|----------------------|-----|--------|-------|---------------|-----------|-----|
| Intimation | 173 | 847 | 1,020 | 766 | 20 | 234 |
| Limewash | 11 | 127 | 138 | 129 | 3 | 6 |
| Nuisance | 22 | 16 | 38 | 15 | 1 | 22 |
| Abatement Order .. | 2 | — | 2 | — | — | 2 |
| Prohibition Order .. | 1 | — | 1 | — | — | 1 |
| Total .. | 209 | 990 | 1,199 | 910 | 24 | 265 |

REPORTS TO OTHER DEPARTMENTS

| | | | |
|---------------------------|----|-------|-----|
| City Cleansing Department | .. | .. | 122 |
| City Building Department | .. | .. | 57 |
| City Sewerage Department | .. | .. | 87 |
| City Fire Brigade | .. | .. | 57 |
| Other Departments | .. | .. | 309 |
| | | Total | 632 |

PLAGUE PREVENTION SECTION

| | |
|--|-------|
| Total number of rats caught in the City Area | 3,046 |
| Number of Fleas combed from rats | 4,085 |
| Number of Mites combed from rats | 77 |

No plague infected rats were found.

CEMETERY SECTION

| | | | |
|------------------------------|----|-------|-------|
| Burial in Public Cemeteries | .. | .. | 5,393 |
| Burial in Private Cemeteries | .. | .. | 738 |
| | | Total | 6,131 |
| Cremations | .. | .. | 227 |
| Re-burial of exhumed remains | .. | .. | 7 |
| Ash Burials | .. | .. | 4 |

For number of Burials by Races see Table C.

GENERAL

During the year the health situation of the City had been maintained at a reasonable level and there had been no epidemic outbreaks of disease.

The Public Health Inspectorate gave lectures and practical demonstrations in Public Health Work to students taking the D.P.H. Course, University of Malaya medical students and Public Health Nurses.

In order to improve the standard of ice-cream manufacture in the various ice-cream factories in the City Area a Public Health Inspector was detailed to carry out the full time duties in connection with the preparation, storage, distribution and sale of ice-cream. The primary concern of the Public Health Inspector is to advise the licensees and workers of the various ice-cream factories on the proper methods of producing a safe ice-cream fit for human consumption. He is also responsible for the health education of the workers engaged in ice-cream production and distribution. Check samples of ice-cream and popsicles were taken for the purpose of ascertaining whether the pasteurisation of ice-cream mix and the sterilisation of utensils and equipment, used in the process of manufacture, have been carried out in accordance with the procedure laid down in the Food and Drugs Regulations, 1957.

Action was also taken against hawkers selling ice-cream which was not manufactured under licence from the Licensing Authority. Pamphlets entitled 'DON'T SELL UNLICENSED ICE-CREAM' were distributed to unlicensed ice-cream hawkers.

During the year a total of 198 employees were sent to the Middleton Hospital for medical examination for typhoid carriers.

FOOD AND DRUGS SECTION

(a) Food Poisoning

The number of reports on food poisoning increased during the year.

54 cases of food poisoning with 568 persons known to be affected, were investigated. Of these, 48 cases were reported by the General Hospital, 1 reported by the Public and 5 discovered through independent investigation by the Food and Drugs Inspectors. Of the 54 cases, 8 were later confirmed to be *NOT* food poisoning.

Eight cases involved three food establishments, the causes of which were found to be contamination of food due to cuts and wounds on handlers, careless handling of food and feeding utensils, and improper storage of food. Action taken included warning to the catering establishments and suitable advice given to those handling food. Food handlers found with cuts, wounds and sores were stopped from handling food until cured.

Arrangements made with the General Hospital for the reporting of outbreak of food poisoning by telephone (confirmed later in writing) enabled the Food and Drugs Inspectorate to institute immediate action any time in the

day or night. In this way, food remnants, if any, were recovered for investigation. The assistance given by the Hospital authorities and the various departments in the examination of specimens and samples is much appreciated.

(b) Food Contamination

Two cases of contamination of food were reported.

In one case, a consignment of rice was inspected by the Food and Drugs Inspectors and found to be contaminated with diesel oil. The whole consignment was condemned.

The other involved arsenic contamination in which a lighter carried amongst other goods drums of sodium arsenite, chests of tea, cases of dried mushrooms, condensed milk, polythene bags intended for packing food, and toys for children. On investigation it was found that drums of sodium arsenite had broken loose in the lighter and subsequent loading and unloading in the lighter had caused contamination of the cases containing food and other goods. Three chests of tea with the casings damaged and stained with arsenic were condemned and destroyed. The rest was transferred into new containers under supervision of Food and Drugs Inspectors. The lighter was subjected to a repeated process of half submerged in sea water and pumping out until the result of analysis of washings was found satisfactory, and the lighter repainted with Rangoon Oil before again being put into use.

An investigation of margarine was carried out during the year following a report in the local press that an outbreak of skin rash has occurred in persons consuming oleo-margarine manufactured in Holland. Samples of local margarine were found to be satisfactory and none of the margarine of the type under suspicion had been exported to Singapore.

DRUGS

During the year a report by the Chief Chemist on a sample of Chinese Medicine called 'PING GOH CHIN' was received. On investigation it was found that a nine year old child was affected with temporary blindness after having been given doses of this medicine. Food and Drugs Inspector traced the manufacturer of this drug and result of analysis showed that it contained 97% aspirin as against the formula on the label which declared Phenacetinum 37% Caffeinæ Citras 10% and Acidum Acetyl Salicylicum 53%.

In view of this, court proceeding was taken and conviction was obtained against the manufacturer. The entire stock of the drug was forfeited and destroyed. Stocks of this drug found in local medicine shops were surrendered and destroyed.

TING SIEW SAU,
*Chief Public Health Inspector,
Health Department.*

22nd February, 1961.

APPENDIX I

Table A

SAMPLES TAKEN FOR CHEMICAL EXAMINATION

| | | | | | |
|-------------------------------------|----|----|----|----|-----|
| Milk | .. | .. | .. | .. | 228 |
| Boiled Milk | .. | .. | .. | .. | 30 |
| Carbonated and Non-Carbonated Drink | .. | .. | .. | .. | 124 |
| Others | .. | .. | .. | .. | 14 |
| Total | | | | | 396 |

SAMPLES TAKEN FOR BACTERIOLOGICAL EXAMINATION

| | | | | | |
|-----------|----|----|----|----|-----|
| Ice-Cream | .. | .. | .. | .. | 263 |
| Popsicles | .. | .. | .. | .. | 199 |
| Milk | .. | .. | .. | .. | 14 |
| Others | .. | .. | .. | .. | 32 |
| Total | | | | | 508 |

Table B

SUMMARY OF SAMPLES TAKEN BY THE FOOD AND DRUGS INSPECTORATE DURING 1960

1. Samples taken for Chemical Examination

FOOD

| | City Area | Rural Area | Total |
|--|-----------|------------|-------|
| <i>Beverages (Hot)</i> | | | |
| Cocoa | .. | 1 | — |
| Coffee Extract | .. | 4 | — |
| Coffee Mixture | .. | 155 | 148 |
| Coffee Powder | .. | 6 | 5 |
| | 166 | 153 | 319 |
| <i>Carbonated and Non Carbonated Drinks</i> | | | |
| Aerated Waters | .. | 4 | 1 |
| Non Carbonated Drinks | .. | 5 | 1 |
| Syrups and Cordials | .. | 45 | 22 |
| | 54 | 24 | 78 |
| <i>Cereals and Cereal Products</i> | | | |
| Vermicelli | .. | 24 | 6 |
| Wheat and Wheat Flour | .. | 6 | 6 |
| Other Cereal and Bean Products | .. | 24 | 7 |
| | 54 | 19 | 73 |
| <i>Colouring, Flavouing, and Preserving Agents</i> | | | |
| Colouring Agents | .. | 13 | 2 |
| Flavouring Agents | .. | 9 | — |
| | 22 | 2 | 24 |

| | City Area | Rural Area | Total |
|-------------------------------------|-----------|------------|-------|
| <i>Edible Fats and Oils</i> | | | |
| Coconut Oil | .. | 13 | 2 |
| Cooking Oil | .. | 26 | 7 |
| Cooking Product (Fat) | .. | 10 | 1 |
| (1 for labelling only) | | | |
| Gingelly Oil | .. | 26 | 23 |
| Groundnut Oil | .. | 15 | 1 |
| Lard | .. | 2 | — |
| Margarine | .. | 12 | — |
| | 104 | 34 | 138 |
| <i>Fish, Shellfish and Products</i> | | | |
| Canned Fish | .. | 3 | — |
| | | | 3 |
| <i>Fruit and Vegetable Products</i> | | | |
| Canned Fruits | .. | 2 | 1 |
| Canned Vegetables | .. | 27 | 2 |
| Dried/Preserved Fruits | .. | 15 | 2 |
| Dried/Preserved Vegetables | .. | 10 | 1 |
| Fresh Fruits | .. | 99 | 42 |
| Vegetable Extracts | .. | — | 1 |
| Other Vegetable Products | .. | 1 | — |
| | 154 | 49 | 203 |

Table B—continued

| | City Area | Rural Area | Total | | City Area | Rural Area | Total |
|--------------------------------------|--------------|---------------|-------|----------------------|----------------------|---------------|-------|
| <i>Intoxicating Liquor</i> | | | | | <i>Miscellaneous</i> | | |
| Beer | .. | 9 | | Cakes | .. | 1 | — |
| Stout | .. | 5 | 1 | Chocolates .. | .. | 2 | 2 |
| | | — | — | Confectionery .. | .. | 4 | — |
| | | 14 | 1 | Egg Jam | .. | 10 | 3 |
| | | — | — | Peanut Butter .. | .. | 13 | 2 |
| | | | 15 | Sweets | .. | 11 | — |
| | | | | Others (1 for label) | .. | 5 | — |
| <i>Meat and Meat Products</i> | | | | | — | — | — |
| Ham and Bacon .. | .. | 4 | 4 | | 46 | 7 | 53 |
| Sausages | .. | 2 | 1 | | — | — | — |
| Other Meat Products | .. | 10 | 3 | | — | — | — |
| | | — | — | | City Area .. | 828 | |
| | | 16 | 8 | | Rural Area .. | 321 | |
| | | — | — | | | | |
| | | | 24 | | Total c/f .. | 1,149 | |
| <i>Milk and Milk Products</i> | | | | | | | |
| Butter | .. | 24 | 1 | | | | |
| Cheese | .. | 22 | — | | | | |
| Cream | .. | 1 | — | | | | |
| Full Cream Milk | .. | | | | | | |
| Powder | .. | 14 | — | | | | |
| Ghee | .. | 1 | — | | | | |
| Infant Food .. | .. | 3 | — | | | | |
| Milk | .. | 7 | 1 | | | | |
| Skimmed Milk Pow- | .. | | | | | | |
| der | .. | 60 | — | | | | |
| Sweetened Con- | .. | | | | | | |
| densed Milk .. | .. | 8 | 4 | | | | |
| Unsweetened Con- | .. | | | | | | |
| densed Milk .. | .. | 1 | — | | | | |
| Other Milk Products | .. | 2 | — | | | | |
| | | — | — | | | | |
| | | 143 | 6 | | | | |
| | | — | — | | | | |
| | | | 149 | | | | |
| <i>Sauces and Vinegars</i> | | | | | | | |
| Artificial Vinegars | .. | 11 | 4 | | | | |
| Chilly Sauce .. | .. | — | 4 | | | | |
| Malt Vinegar .. | .. | 3 | — | | | | |
| Rice Vinegar .. | .. | 6 | — | | | | |
| Tomato Sauce .. | .. | 1 | — | | | | |
| Other Sauces .. | .. | 5 | 1 | | | | |
| | | — | — | | | | |
| | | 26 | 9 | | | | |
| | | — | — | | | | |
| | | | 35 | | | | |
| <i>Spices and Condiments</i> | | | | | | | |
| Chilly Powder .. | .. | 2 | 1 | | | | |
| Coriander Powder | .. | 11 | 6 | | | | |
| Curry Powder .. | .. | 1 | — | | | | |
| Pepper | .. | 1 | — | | | | |
| Turmeric | .. | 2 | 1 | | | | |
| Other Spices .. | .. | 8 | — | | | | |
| Pickles | .. | 1 | 1 | | | | |
| | | — | — | | | | |
| | | 26 | 9 | | | | |
| | | — | — | | | | |
| | | | 35 | | | | |
| | | | | | | | |
| Total samples taken in City Area .. | | | | | 1,435 | | |
| Total samples taken in Rural Area .. | | | | | 451 | | |
| | | | | | — | | |
| Grand Total .. | | | | | 1,886 | | |

Table C

| 1960 | | | Burials and Cremations made in City Cemeteries and licensed burial grounds in City Area | Exhumations |
|-----------|----|----|---|-------------|
| Europeans | .. | .. | 43 | 2 |
| Eurasians | .. | .. | 73 | .. |
| Chinese | .. | .. | 4,007 and 1 ashes 6 exhumed remains (13) | 14 |
| Malays | .. | .. | 1,317 | .. |
| Indians | .. | .. | 629 and 1 exhumed remains (212) | 1 |
| Others | .. | .. | 62 and 3 ashes (2) | .. |
| Total .. | | | 6,131 and 4 ashes 7 exhumed remains (227) | |

Figure in brackets denotes cremation.

ANNUAL REPORT OF THE CITY COUNCIL DISPENSARIES FOR THE YEAR 1960

FREE MEDICAL ATTENTION is given to all staff and open vote employees of the City Council and Housing Board by the three Staff Dispensaries. Dependants of City Council employees are not eligible for medical attention at these dispensaries. City Council employees total roughly 13,000 comprised of about 4,000 staff and 9,100 daily rated workers. In addition, we cater to 800 employees of Housing and Development Board and some of the staff of several government ministries. Employees are free to seek treatment from Private Practitioners in which case their medical certificates are accepted by the Council subject to endorsement by the Medical Officers i/c Staff.

The Senior Medical Officer i/c Staff is also performing the duties of Visiting Medical Officer to the three dispensaries at Johore maintained by the Water Department. Two visits are made to Johore every month in this capacity.

During the year, a total of 139,830 cases attended at the three dispensaries of which 83,063 were new cases.

STAFF

The approved strength of medical officers for the three staff dispensaries is eight. At present there are only four medical officers leaving four vacant posts. With the appointment of two more Hospital Assistants during 1961, the position of Hospital Assistants will be eased. Though approval has been obtained to fill up two vacant posts of dispensary attendants, the posts have not yet been filled.

The Main Dispensary which was situated at the City Hall Building has been shifted to Rochore House from 19th December, 1960. The new premises is not centrally situated nor is the accommodation adequate for our needs.

Dr. A. C. S. RAJAN,
*Medical Officer i/c Staff,
Main Dispensary.*

* MONTHLY PAID STAFF AND DAILY RATED EMPLOYEES OF
CITY COUNCIL AND HOUSING BOARD

City Council:

| | | | |
|---------------------------|----|----|--------|
| All monthly paid staff | .. | .. | 4,000 |
| All daily rated employees | .. | .. | 9,100 |
| Total | .. | | 13,100 |

Housing Board:

| | | | |
|---------------------------|----|----|-----|
| All monthly paid staff | .. | .. | 280 |
| All daily rated employees | .. | .. | 520 |
| Total | .. | | 800 |

| Summary | Staff | Daily rated employees | Total |
|--|--------|-----------------------------|---------|
| 1. New cases attended at dispensaries including accidents while on duty | 16,211 | 66,852 | 83,063 |
| 2. Total attendances including first visits .. | 25,158 | 114,672 | 139,830 |
| 3. Examination for Physical Fitness | 729 | 743 | 1,472 |
| 4. Visits paid to homes by M.O. i/c Staff | 81 | 77 | 158 |
| 5. Cases treated by Private Practitioners | 2,549 | 17,907 | 20,456 |
| 6. Days sick leave granted (excluding leave under Workmen's Compensation Ordinance) including leave on account of Tuberculosis by:— | | | |
| (a) M.O. i/c Staff | 14,598 | 82,266 | 96,864 |
| (b) Private Practitioners | 5,153 | 29,507 | 34,660 |
| (c) Hospitals | 7,739 | 36,990 | 44,729 |
| Total .. | 27,490 | 148,763 | 176,253 |
| 7. Leave granted under Workmen's Compensation Ordinance by M.O. i/c Staff and General Hospital | 435 | 17,910 | 18,345 |
| 8. Days leave granted for Tuberculosis | 2,152 | 14,375 | 16,527 |
| 9. Average number of days sick leave (excluding leave under Workmen's Compensation Ordinance) including Tuberculosis leave granted per person employed in 1960 | 6.42 | 15.06 | 12.67 |

* Approximate figures supplied by A.S. Staff, Labour Officer and Housing Board.

NUMBER OF CASES OF NEW ILLNESS SEEN INCLUDING ACCIDENTS
(W.C.F.) AT THE THREE STAFF DISPENSARIES DURING 1960

| Month | | | Main Dispensary | Lorong Lalat Dispensary | Alexandra Road Dispensary | Total |
|-----------|----|--------------------|--------------------|-------------------------------|---------------------------------|-----------------------------|
| January | .. | Staff Open Vote | 921 863 | 187 3,792 | 73 1,315 | 1,181 } 7,151 5,970 } |
| February | .. | Staff Open Vote | 985 868 | 189 3,789 | 95 1,469 | 1,269 } 7,395 6,126 } |
| March | .. | Staff Open Vote | 1,033 817 | 198 3,592 | 101 1,533 | 1,332 } 7,274 5,942 } |
| April | .. | Staff Open Vote | 965 698 | 193 3,368 | 85 1,361 | 1,243 } 6,670 5,427 } |
| May | .. | Staff Open Vote | 1,128 717 | 203 3,527 | 102 1,468 | 1,433 } 7,145 5,712 } |
| June | .. | Staff Open Vote | 1,011 777 | 199 3,365 | 109 1,442 | 1,319 } 6,903 5,584 } |
| July | .. | Staff Open Vote | 1,101 763 | 186 3,383 | 129 1,476 | 1,416 } 7,038 5,622 } |
| August | .. | Staff Open Vote | 1,171 797 | 197 3,421 | 113 1,464 | 1,481 } 7,163 5,682 } |
| September | .. | Staff Open Vote | 1,167 833 | 188 3,238 | 126 1,612 | 1,481 } 7,164 5,683 } |
| October | .. | Staff Open Vote | 1,166 762 | 140 2,223 | 105 1,593 | 1,411 } 5,989 4,578 } |
| November | .. | Staff Open Vote | 1,092 793 | 193 2,815 | 126 1,608 | 1,411 } 6,627 5,216 } |
| December | .. | Staff Open Vote | 914 660 | 192 3,040 | 128 1,610 | 1,234 } 6,544 5,310 } |
| Total | .. | Staff Open Vote | 12,654 9,348 | 2,265 39,553 | 1,292 17,951 | 16,211 } 83,063 66,852 } |

NUMBER OF CONSULTATIONS GIVEN INCLUDING FIRST VISITS AND
DRESSINGS AT THE THREE STAFF DISPENSARIES DURING 1960

| Month | | | Main Dispensary | Lorong Lalat Dispensary | Alexandra Road Dispensary | Total |
|-----------|----|--------------------|--------------------|-------------------------------|---------------------------------|-------------------------------|
| January | .. | Staff Open Vote | 1,411 1,472 | 281 6,408 | 157 2,499 | 1,849 } 10,379 } 12,228 |
| February | .. | Staff Open Vote | 1,526 1,364 | 292 6,220 | 191 2,687 | 2,009 } 10,271 } 12,280 |
| March | .. | Staff Open Vote | 1,610 1,288 | 317 6,142 | 201 2,808 | 2,128 } 10,238 } 12,366 |
| April | .. | Staff Open Vote | 1,552 1,099 | 311 5,289 | 157 2,396 | 2,020 } 8,784 } 10,804 |
| May | .. | Staff Open Vote | 1,935 1,243 | 330 5,564 | 200 2,607 | 2,465 } 9,414 } 11,879 |
| June | .. | Staff Open Vote | 1,618 1,253 | 331 5,316 | 182 2,509 | 2,131 } 9,078 } 11,209 |
| July | .. | Staff Open Vote | 1,577 1,224 | 312 5,530 | 192 2,678 | 2,081 } 9,432 } 11,513 |
| August | .. | Staff Open Vote | 1,670 1,312 | 325 5,902 | 179 2,436 | 2,174 } 9,650 } 11,824 |
| September | .. | Staff Open Vote | 1,742 1,375 | 292 6,270 | 198 2,518 | 2,232 } 10,163 } 12,395 |
| October | .. | Staff Open Vote | 1,690 1,228 | 140 4,728 | 179 2,370 | 2,009 } 8,326 } 10,335 |
| November | .. | Staff Open Vote | 1,723 1,354 | 260 5,832 | 189 2,489 | 2,172 } 9,675 } 11,847 |
| December | .. | Staff Open Vote | 1,386 1,114 | 312 5,697 | 190 2,451 | 1,888 } 9,262 } 11,150 |
| Total | .. | Staff Open Vote | 19,440 15,326 | 3,503 68,898 | 2,215 30,448 | 25,158 } 114,672 } 139,830 |

DISEASES TREATED AT THE THREE STAFF DISPENSARIES
DURING THE YEAR 1960

| <i>Disease</i> | <i>Cases</i> |
|---|--------------|
| Short Fevers | 3,813 |
| Diseases of the Nervous System .. | 424 |
| Diseases of the Respiratory System .. | 22,543 |
| Diseases of the Cardiovascular System .. | 368 |
| Diseases of the Digestive System .. | 6,913 |
| Diseases of the Urogenital System .. | 730 |
| Diseases of the Eye | 3,179 |
| Diseases of the Ear, Nose, Throat and Mouth | 3,847 |
| Diseases due to deficiency | 2,553 |
| Diseases of the Skin | 6,953 |
| Dental Diseases | 1,994 |
| Tuberculosis | 30 |
| Venereal Diseases | 260 |
| Diabetes | 1,251 |
| Accidents and Injuries (W.O.D.) .. | 4,295 |
| Accidents and Injuries (Off Duty) .. | 7,378 |
| Eruptive Fevers | 196 |
| Diseases of Female | 203 |
| Other minor Ailments | 16,133 |
| | <hr/> |
| Total .. | 83,063 |
| | <hr/> |

NUMBER OF NEW CASES ATTENDING MONTHLY FROM VARIOUS DEPARTMENTS AT THE THREE STAFF
DISPENSARIES

| Month | Departments C.A.B.S. | Assessor's | City Cleansing | City Engineers | Electricity | Fire Brigade | Gas | Health | Markets and Hawkers | Government Department | Secretariat | Housing and Dev. Board | Treasurer's | Vehicles | Veterinary Surgeons | Water | Total |
|-----------|-------------------------|------------|-------------------|-------------------|-------------|--------------|-------|--------|------------------------|--------------------------|-------------|---------------------------|-------------|----------|------------------------|-------|--------|
| January | 241 | 17 | 2,145 | 1,681 | 934 | 132 | 213 | 526 | 152 | 39 | 28 | 350 | 165 | 34 | 31 | 463 | 7,151 |
| February | 255 | 24 | 2,246 | 1,726 | 970 | 149 | 202 | 490 | 161 | 39 | 38 | 388 | 163 | 29 | 31 | 484 | 7,395 |
| March .. | 211 | 18 | 2,175 | 1,716 | 885 | 162 | 183 | 490 | 164 | 59 | 27 | 424 | 192 | 28 | 47 | 493 | 7,274 |
| April .. | 224 | 22 | 1,980 | 1,479 | 872 | 139 | 199 | 460 | 148 | 68 | 36 | 348 | 170 | 34 | 37 | 454 | 6,670 |
| May .. | 246 | 18 | 1,995 | 1,639 | 922 | 160 | 182 | 490 | 163 | 74 | 41 | 430 | 182 | 36 | 47 | 520 | 7,145 |
| June .. | 230 | 18 | 2,104 | 1,505 | 796 | 150 | 209 | 494 | 181 | 59 | 33 | 402 | 166 | 42 | 33 | 481 | 6,903 |
| July .. | 256 | 17 | 1,961 | 1,658 | 875 | 184 | 201 | 432 | 177 | 66 | 46 | 433 | 174 | 40 | 31 | 487 | 7,038 |
| August | 247 | 16 | 2,043 | 1,613 | 953 | 191 | 189 | 440 | 143 | 61 | 55 | 415 | 205 | 67 | 32 | 493 | 7,163 |
| September | 233 | 14 | 2,025 | 1,645 | 908 | 184 | 198 | 458 | 170 | 89 | 44 | 417 | 194 | 67 | 32 | 486 | 7,164 |
| October | 179 | 26 | 1,724 | 1,370 | 796 | 176 | 104 | 370 | 107 | 88 | 39 | 398 | 161 | 76 | 4 | 371 | 5,989 |
| November | 208 | 22 | 1,968 | 1,477 | 841 | 187 | 139 | 419 | 124 | 98 | 40 | 401 | 189 | 56 | 17 | 441 | 6,627 |
| December | 255 | 12 | 1,836 | 1,531 | 843 | 143 | 161 | 407 | 149 | 78 | 24 | 451 | 139 | 64 | 25 | 456 | 6,544 |
| Total .. | 2,755 | 224 | 24,202 | 19,040 | 10,595 | 1,957 | 2,180 | 5,476 | 1,839 | 818 | 451 | 4,857 | 2,100 | 573 | 367 | 5,629 | 83,063 |

PLAGUE PREVENTION

THE FOLLOWING IS A RETURN OF RATS CAUGHT FOR THE YEAR, 1960

| Source | R NORVEGI-CUS | | R RATTUS | | R CON-COLOR | | M MUS-CULUS | | Croci-dura | Total Rats | Total Preg. Rats | Total Dead Rats | Fleas X. Cheo-pies | Fleas Others C. Fel-is | Total Fleas. | Mite | T LEWISI | | Average Fleas per rat | Remarks |
|-----------------|---------------|-------|----------|-----|-------------|-----|-------------|-----|------------|------------|------------------|-----------------|--------------------|------------------------|--------------|------|----------|-----|-----------------------|------------------|
| | M. | F. | M. | F. | M. | F. | M. | F. | | | | | | | | | +ve | -ve | | |
| City Health .. | 805 | 1,670 | 18 | 11 | 87 | 192 | 107 | 42 | 114 | 3,046 | 244 | 42 | 4,085 | .. | 4,085 | 77 | 12 | 313 | 1.34 | .. |
| Govt. Health .. | 9 | 39 | 14 | 31 | 47 | 93 | 158 | 124 | .. | 515 | 30 | 84 | 209 | .. | 209 | 22 | .. | .. | 0.41 | .. |
| S.H.B. .. | 38 | 55 | 62 | 96 | 28 | 16 | .. | .. | .. | 295 | 9 | .. | 124 | .. | 124 | 21 | 1 | .. | 0.42 | .. |
| Port Health .. | 1 | 5 | 43 | 85 | 15 | 12 | 4 | 1 | .. | 166 | 8 | 166 | .. | .. | .. | .. | .. | .. | .. | Fumigated H.C.N. |
| Total .. | 853 | 1,769 | 137 | 223 | 177 | 313 | 269 | 167 | 114 | 4,022 | 291 | 292 | 4,418 | .. | 4,418 | 120 | 13 | 313 | .. | .. |
| Grand Total .. | 2,622 | | 360 | | 490 | | 436 | | 114 | 4,022 | 291 | 292 | 4,418 | .. | 4,418 | 120 | 326 | | .. | .. |
| Pregnant Rats.. | 229 | | 13 | | 27 | | 22 | | | | 291 | | | | | | | | | |

All the Rats were dissected and none were found infected with Plague.
 123 live rats were sent to the Dept. of Parasitology, University of Malaya, Singapore.
 82 live rats were sent to D.A.D.A.H. Headquarters, Singapore Base District.
 1 live rat was sent to the Department of Zoology, University of Malaya, Singapore.
 These rats are not included in the above totals.

